H.264 • Privacy Button • Compact Design **IP8132/8133/8133W**

NETWORK CAMERA

User's Manual

IP8133W
Wireless

IP8132
Wired

IP8133
Wired PoE

Rev. 1.1

VIVOTEK
www.vivotek.com

IP Surveillance

Table of Contents

Overview

Read Before Use

The use of surveillance devices may be prohibited by law in your country. The Network Camera is not only a high-performance web-ready camera but can also be part of a flexible surveillance system. It is the user's responsibility to ensure that the operation of such devices is legal before installing this unit for its intended use.

It is important to first verify that all contents received are complete according to the Package Contents listed below. Take note of the warnings in the Quick Installation Guide before the Network Camera is installed; then carefully read and follow the instructions in the Installation chapter to avoid damage due to faulty assembly and installation. This also ensures the product is used properly as intended.

The Network Camera is a network device and its use should be straightforward for those who have basic networking knowledge. It is designed for various applications including video sharing, general security/ surveillance, etc. The Configuration chapter suggests ways to best utilize the Network Camera and ensure proper operations. For creative and professional developers, the URL Commands of the Network Camera section serves as a helpful reference to customizing existing homepages or integrating with the current web server.

Package Contents

- IP8132, IP8133, or IP8133W
- Power Adapter and Ferrite Core (IP8133/33W)
- Camera Stand
- Software CD
- Warranty Card
- Quick Installation Guide
- Screws
- Antenna (IP8133W)

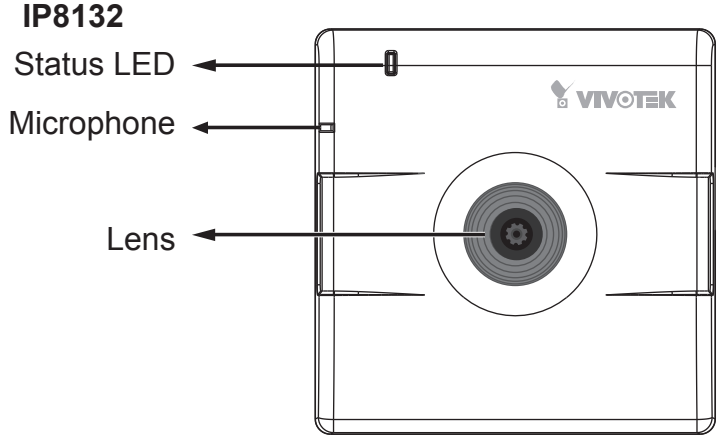
Revision History

- Rev. 1.0: Initial release
- Rev. 1.1: Updated RTSP audio port screen captures.
  Updated available network bit rates.

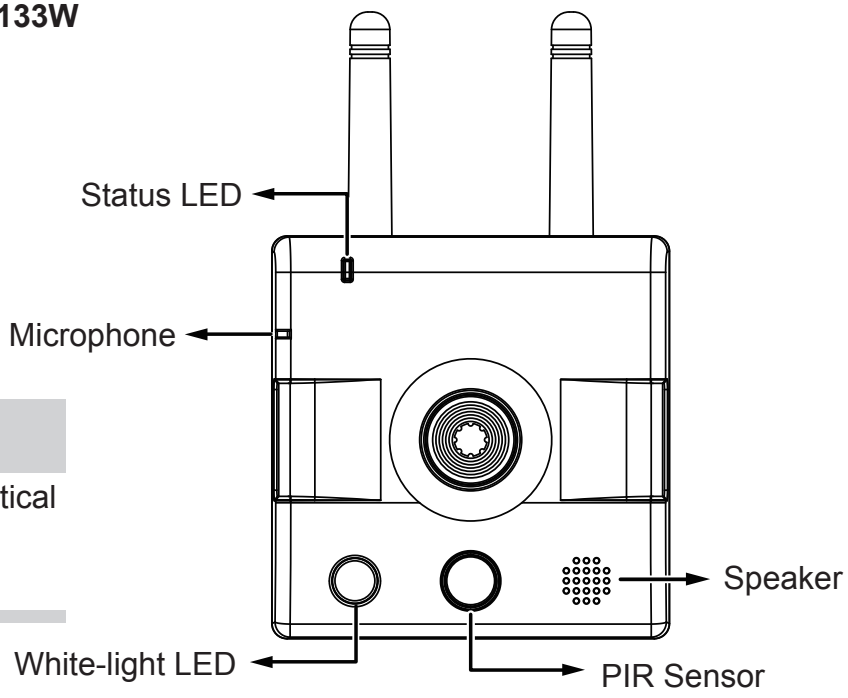
Physical Description

Front Panel

IP8132



IP8133W



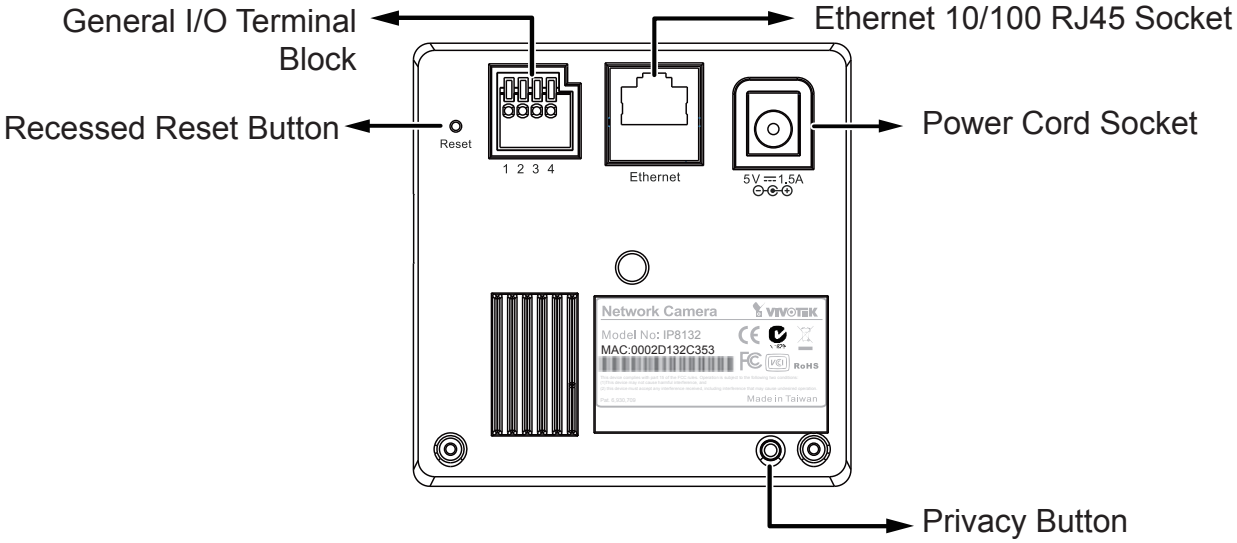
NOTE:

The front view of IP8133 is identical to that of IP8133W except the wireless antenna.

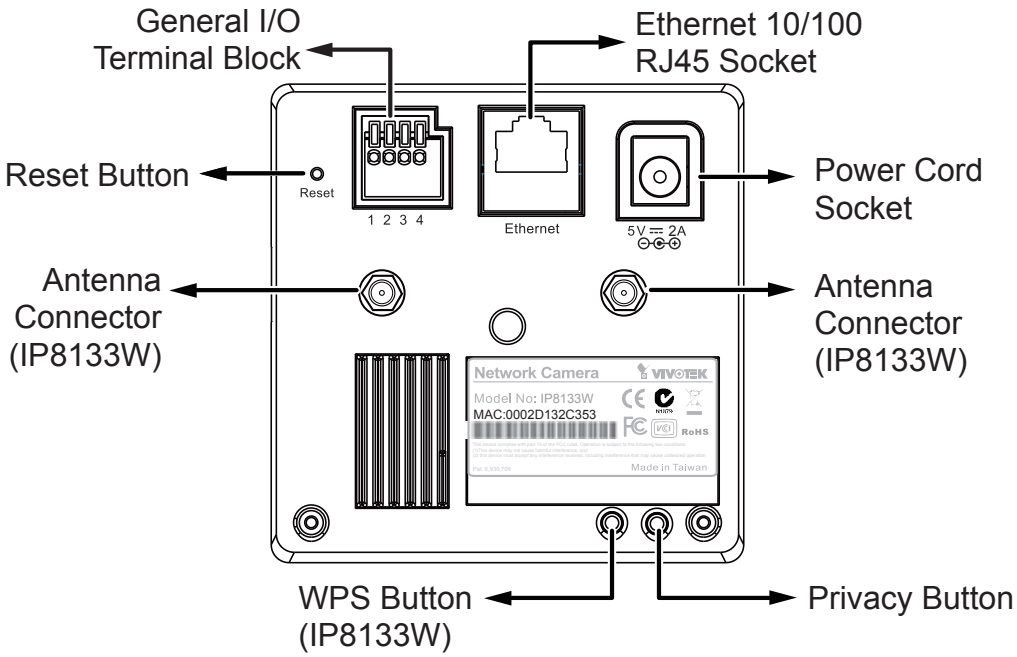
	Item	LED status	Description
LED Definitions	1	Steady Red	Power on and system boot
		Red LED off	Power off
	2	Blink Green every 1 sec.	Network connected
		Steady Red	Network failed
	3	Blink Green every 2 sec.	Audio muted
	4	Blink Orange every 2 sec.	Privacy button pressed
	5	Blink Green, RED, and Orange intermittently	Upgrading firmware
	6	Blink Orange every 0.15 sec.	Restoring default

Back Panel

IP8132

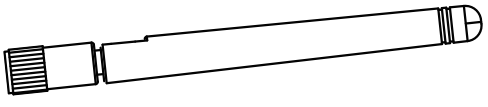


IP8133 & 8133W



NOTE:

Two antennas come with the IP8133W. They are installed by users by turning clockwise to attach to connectors.



General I/O Terminal Block

This Network Camera provides a general I/O terminal block which is used to connect external input / output devices. The pin definitions are described below.

Pin	Name
4	Power
3	Digital Output +
2	Digital Input -
1	Ground

Hardware Reset

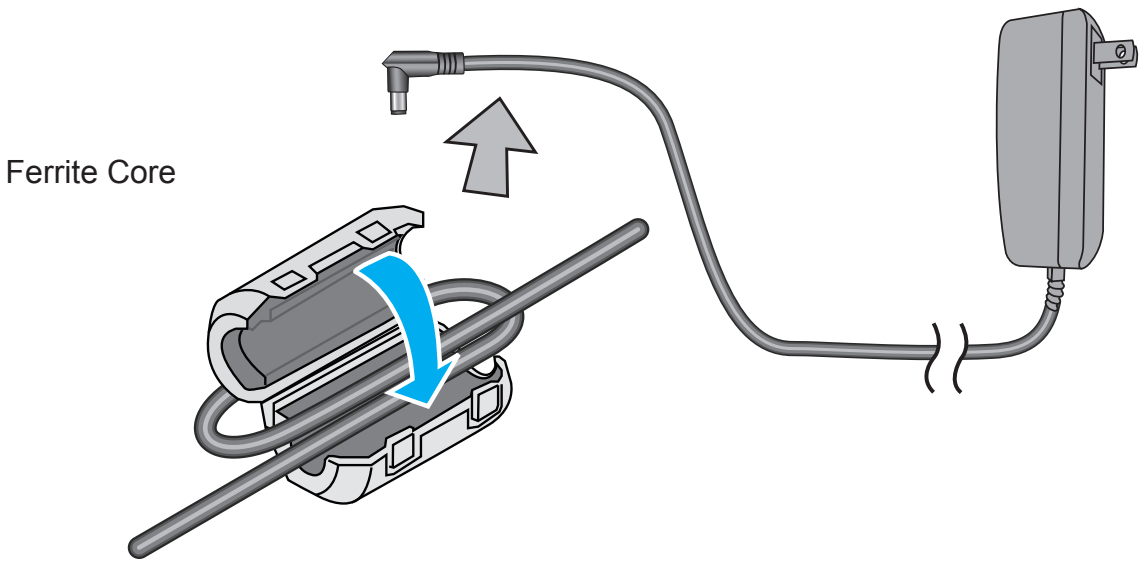
The reset button is used to reset the system or restore the factory default settings. Sometimes resetting the system can return the camera to normal operation. If the system problems remain after reset, restore the factory settings and install again.

Reset: Press and release the recessed reset button with a paper clip or thin object. Wait for the Network Camera to reboot.

Restore: Press and hold the recessed reset button until the status LED rapidly blinks orange. Note that all settings will be restored to factory default. Upon successful restore, the status LED will blink green once per second during normal operation.

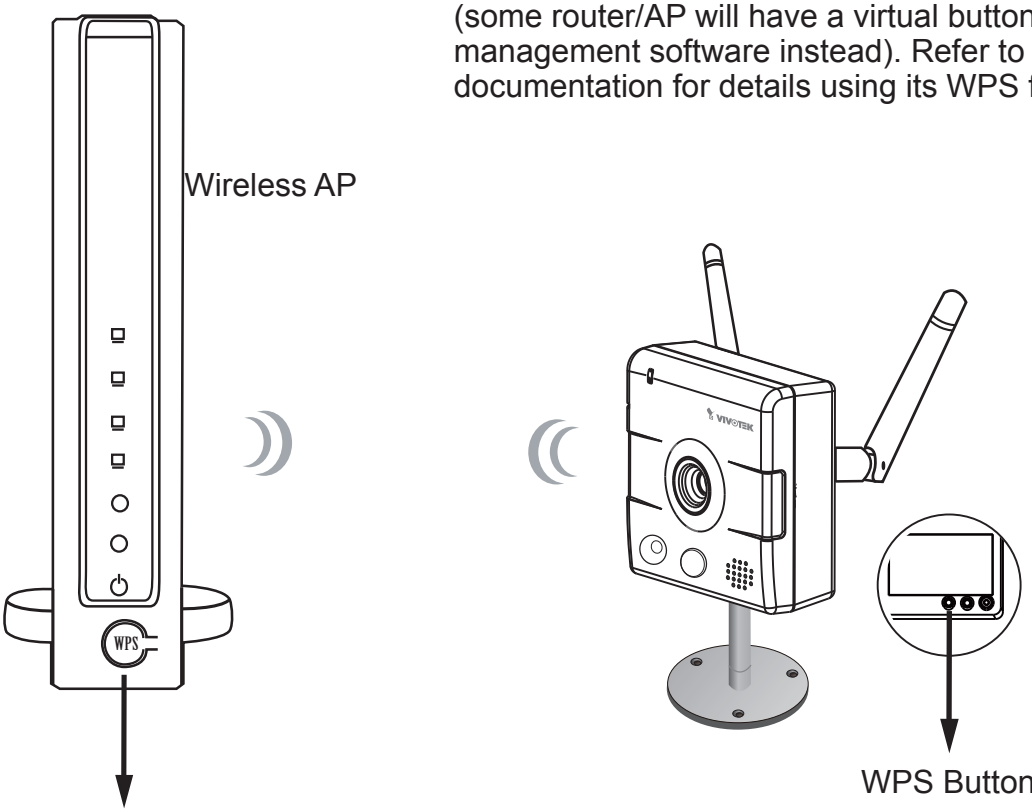
Install Ferrite Core

1. Unsnap the two halves of the ferrite core.
2. Attach the ferrite core to the power cord as close to the DC connector as possible. Fold the ferrite core over the power cord, wrap the power cord once, and snap the small latches together.



Wireless Connection: Using the WPS Button

1. Make sure your AP (Access Point) and Operating System support WPS (Wi-Fi Protected Setup) functions. WPS enables easy setup with compatible APs.
2. Disconnect your LAN cable, and wait for the LED to turn red.
3. Press the WPS button for 1 second. You can then hear vocal instructions (in English) from the camera speaker.
4. Press and hold down the WPS button on your AP (some router/AP will have a virtual button on their management software instead). Refer to your AP's documentation for details using its WPS functions.



When WPS configuration is done, wireless connectivity will be established and the security encryption, such as WEP or WPA-PSK, will be synchronized with the AP. Use the IW2 utility to find the camera. As for IP setting, the camera's use of DHCP or static IP is determined by your configuration on the network camera via the web-based configuration of firmware. The camera's default is DHCP.

NOTE:

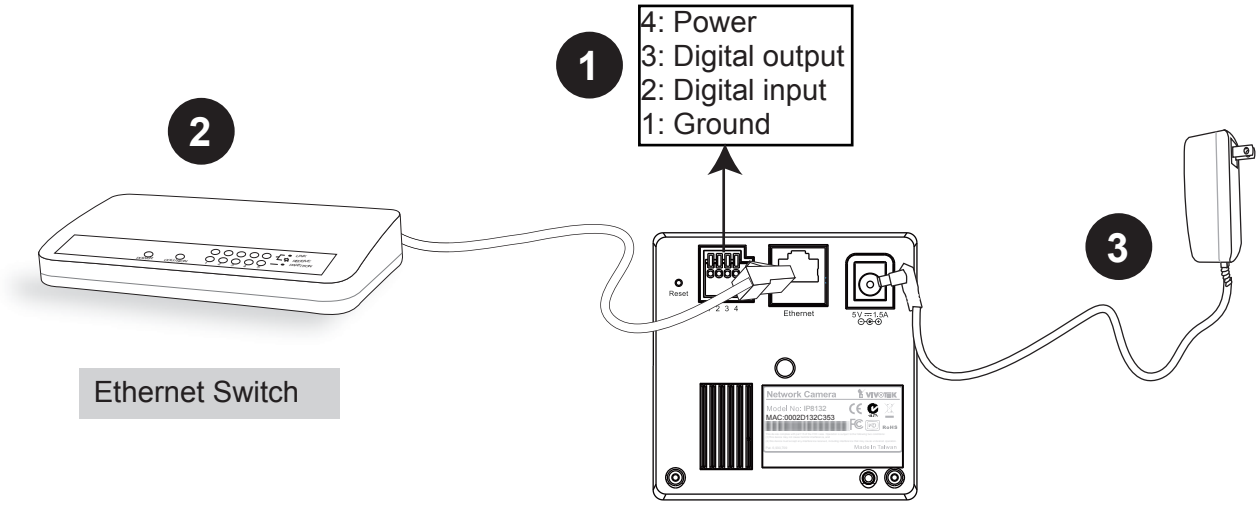
1. WPS may not work if your AP is configured with a "hidden" SSID.
2. If no WPS-enabled AP is detected, the camera will repeat vocal instructions by every 20 seconds, and if the camera still can not detect an AP after 2 minutes, the wireless setup will be cancelled.
3. If a camera is assigned with a fixed IP outside the AP's network segment, wireless setup will fail.
4. A wired connection always has a higher priority, and hence wireless setup will not take effect when the RJ45 LAN port is connected.

Network Deployment

Setting up the Network Camera over the Internet

This section explains how to configure the Network Camera to an Internet connection.

1. If you have external devices such as sensors and alarms, make connections from general I/O terminal block.
2. Connect the camera to a switch via Ethernet cable. Use a Category 5 Cross Cable when Network Camera is directly connected to PC.
3. Connect the power cable from the Network Camera to a power outlet.



NOTE:

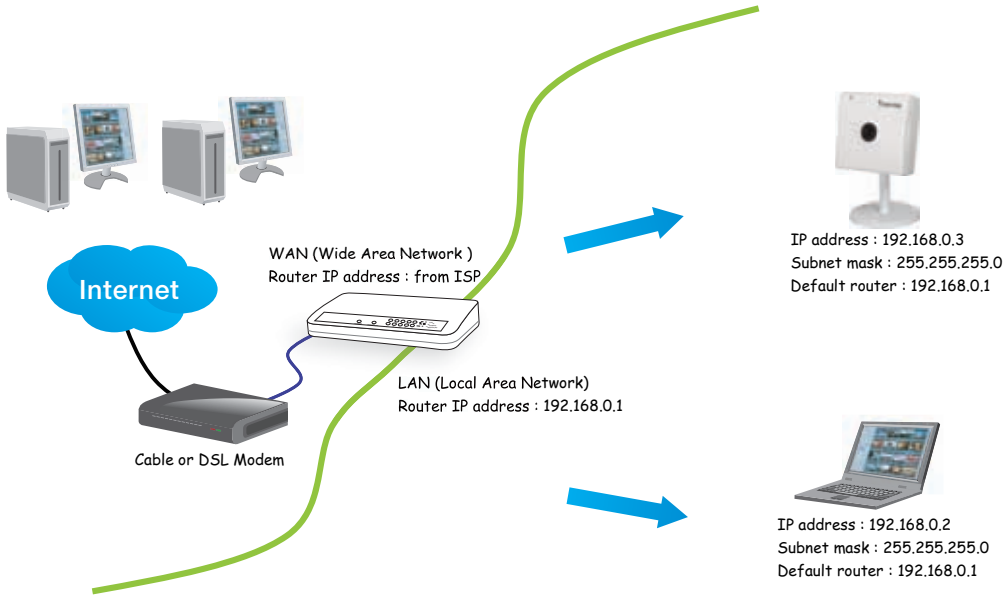
The IP8133 can acquire power through a cable connection with a PoE switch. However, when so connected, the camera is only to be connected to PoE networks without routing to outside plants.

There are several ways to set up the Network Camera over the Internet. The first way is to set up the Network Camera behind a router. The second way is to utilize a static IP. The third way is to use PPPoE.

Internet connection via a router

Before setting up the Network Camera over the Internet, make sure you have a router and follow the steps below.

1. Connect your Network Camera behind a router, the Internet environment is illustrated below. Regarding how to obtain your IP address, please refer to Software Installation on page 10 for details.



2. In this case, if the Local Area Network (LAN) IP address of your Network Camera is 192.168.0.3, please forward the following ports for the Network Camera on the router.

- HTTP port
- RTSP port
- RTP port for video
- RTCP port for video
- RTP port for audio
- RTCP port for audio

If you have changed the port numbers on the Network page, please open the ports accordingly on your router. For information on how to forward ports on the router, please refer to your router's user's manual.

3. Find out the public IP address of your router provided by your ISP (Internet Service Provider). Use the public IP and the secondary HTTP port to access the Network Camera from the Internet. Please refer to Network Type on page 35 for details.

Internet connection with static IP

Choose this connection type if you are required to use a static IP for the Network Camera. Please refer to LAN on page 35 for details.

Internet connection via PPPoE (Point-to-Point over Ethernet)

Choose this connection type if you are connected to the Internet via a DSL Line. Please refer to PPPoE on page 36 for details.

Software Installation

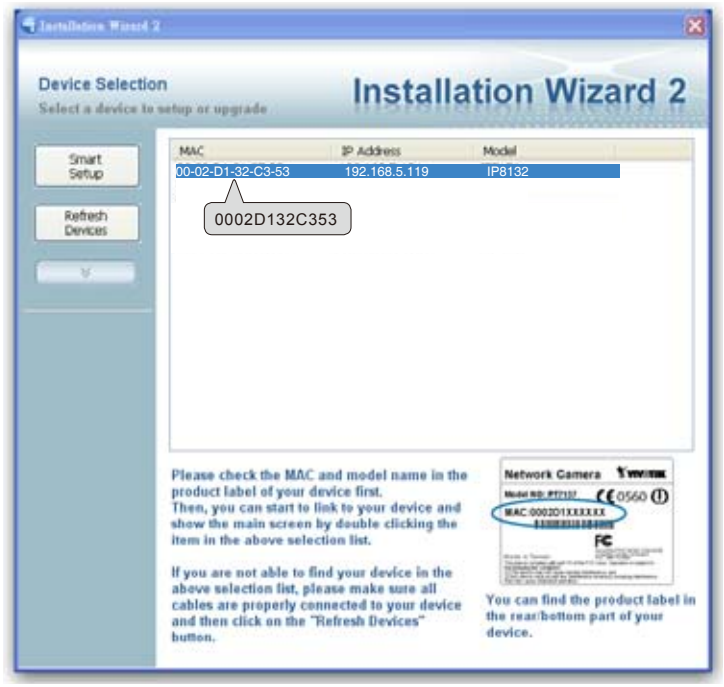
Installation Wizard 2 (IW2), free-bundled software included on the product CD, helps you set up your Network Camera on the LAN.

1. Install IW2 under the Software Utility directory from the software CD.
   Double click the IW2 shortcut on your desktop to launch the program.

2. The program will conduct an analysis of your network environment.
   After your network environment is analyzed, please click **Next** to continue the program.

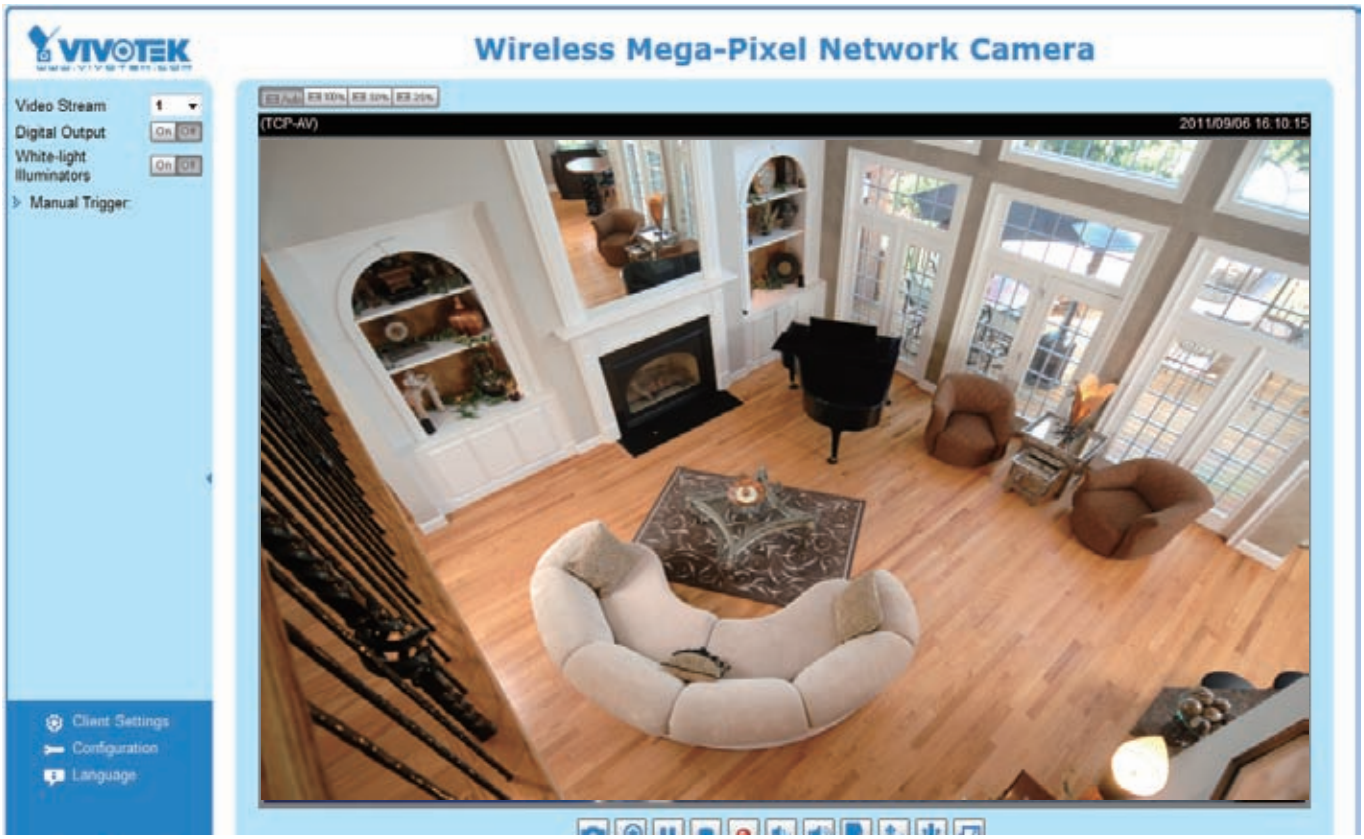
3. The program will search for all VIVOTEK network devices on the same LAN.

4. After searching, the main installer window will pop up. Click on the MAC and model name which matches the product label on your device to connect to the Network Camera via Internet Explorer.



Ready to Use

1. A browser session with the Network Camera should prompt as shown below.
2. You should be able to see live video from your camera. You may also install the 32-channel recording software from the software CD in a deployment consisting of multiple cameras. For its installation details, please refer to its related documents.

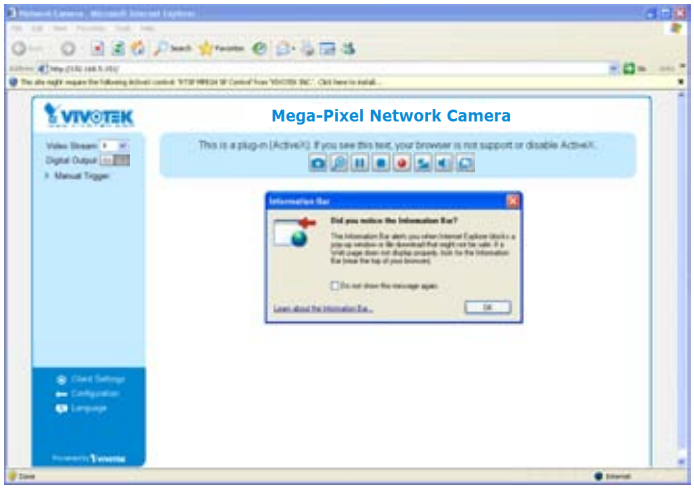


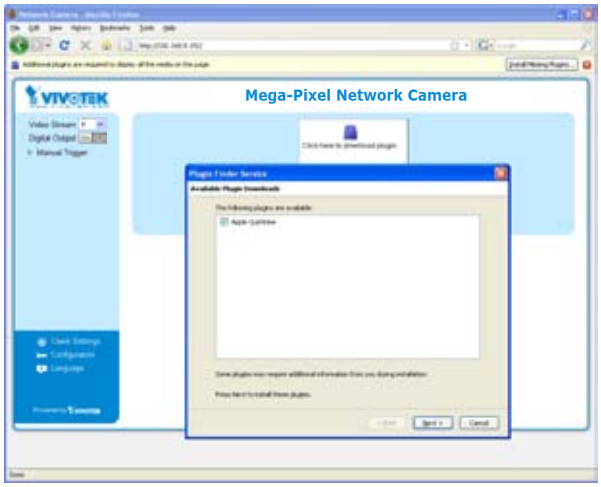
Accessing the Network Camera

This chapter explains how to access the Network Camera through web browsers, RTSP players, 3GPP-compatible mobile devices, and VIVOTEK recording software.

Using Web Browsers

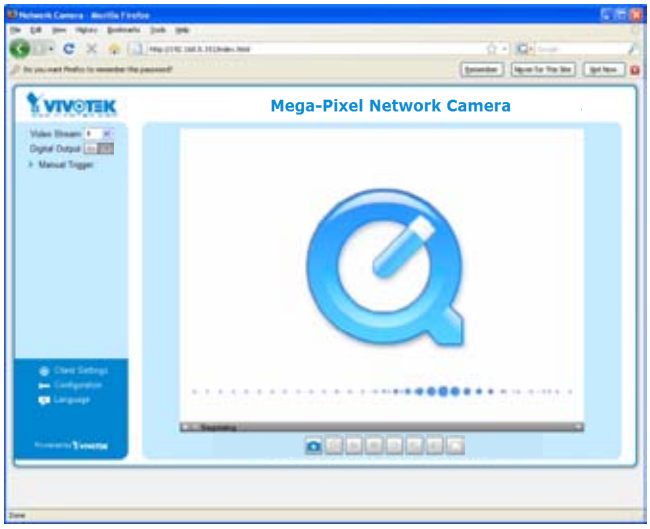
Use Installation Wizard 2 (IW2) to access to the Network Cameras on the LAN.
If your network environment is not a LAN, follow these steps to access the Network Camera:
1. Launch your web browser (ex. Microsoft® Internet Explorer, Mozilla Firefox, or Netscape).
2. Enter the IP address of the Network Camera in the address field. Press **Enter**.
3. The live video will be displayed in your web browser.
4. If it is the first time installing the VIVOTEK network camera, an information bar will pop up as shown below. Follow the instructions to install the required plug-in on your computer.

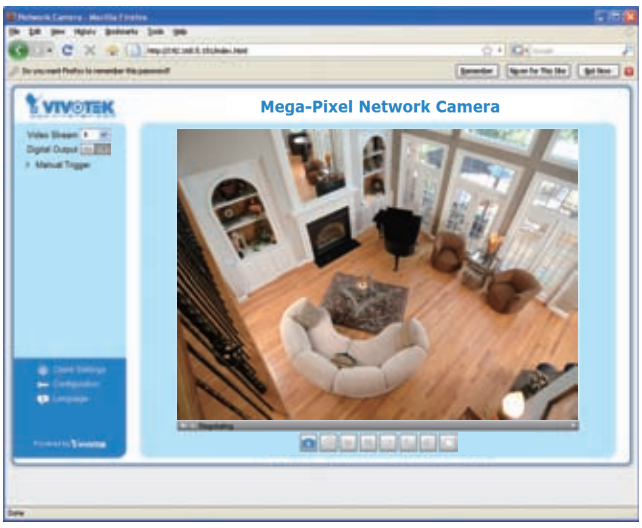




NOTE:

► *For Mozilla Firefox or Netscape users, your browser will use Quick Time to stream the live video. If you do not have Quick Time on your computer, please download it first, then launch the web browser.*

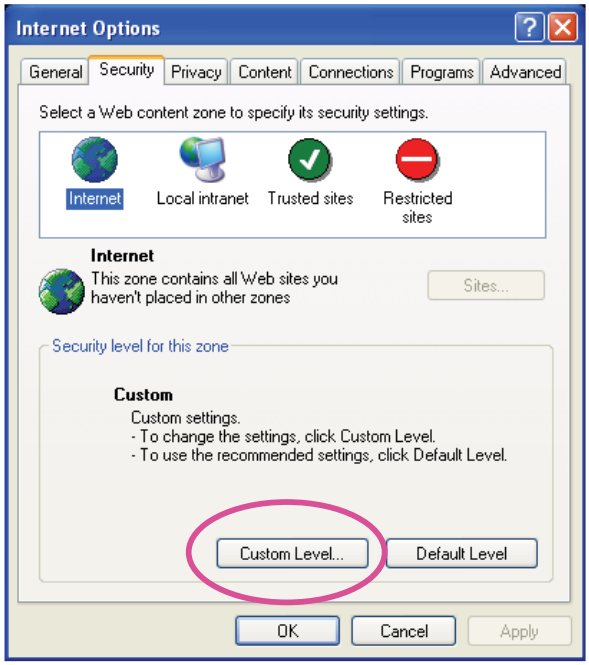




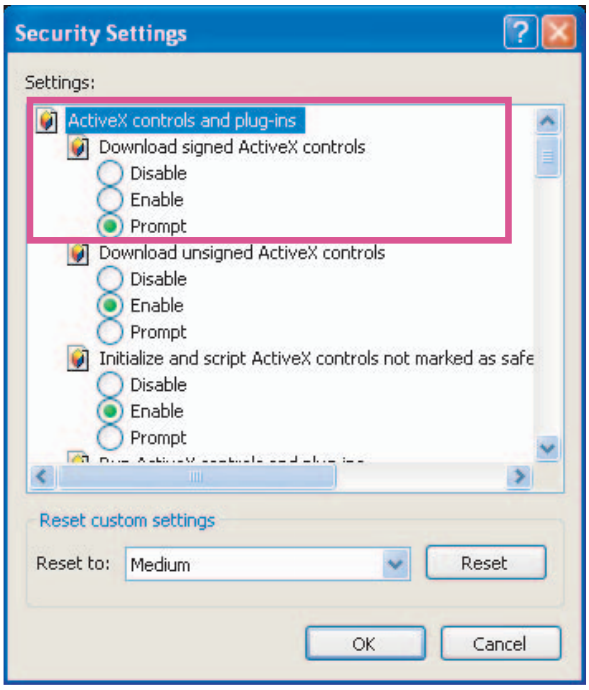
► *By default, the Network Camera is not password-protected. To prevent unauthorized access, it is highly recommended to set a password for the Network Camera.*
For more information about how to enable password protection, please refer to Security on page 28.

► *If you see a dialog box indicating that your security settings prohibit running ActiveX® Controls, please enable the ActiveX® Controls for your browser.*

1. Choose Tools > Internet Options > Security > Custom Level.



*2. Look for Download signed ActiveX® controls; select Enable or Prompt. Click **OK**.*



3. Refresh your web browser, then install the Active X® control. Follow the instructions to complete installation.

IMPORTANT!

- Currently the Network Camera utilizes 32-bit ActiveX plugin. You CAN NOT open a management/view session with the camera using a 64-bit IE browser.
- If you encounter this problem, try execute the Iexplore.exe program from C:\Windows\SysWOW64. A 32-bit version of IE browser will be installed.
- On Windows 7, the 32-bit explorer browser can be accessed from here: C:\Program Files (x86)\Internet Explorer\iexplore.exe.

Using RTSP Players

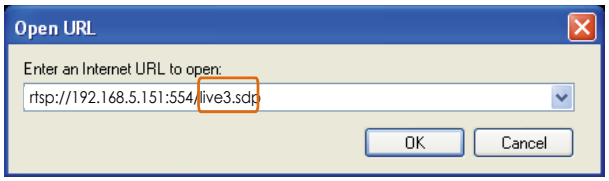
To view the MPEG-4 streaming media using RTSP players, you can use one of the following players that support RTSP streaming.

Quick Time Player

Real Player

1. Launch the RTSP player.
2. Choose File > Open URL. A URL dialog box will pop up.
3. The address format is rtsp://<ip address>:<rtsp port>/<RTSP streaming access name for stream1 or stream2>

As most ISPs and players only allow RTSP streaming through port number 554, please set the RTSP port to 554. For more information, please refer to RTSP Streaming on page 47.
For example:



4. The live video will be displayed in your player.
   For more information on how to configure the RTSP access name, please refer to RTSP Streaming on page 47 for details.

Using 3GPP-compatible Mobile Devices

To view the streaming media through 3GPP-compatible mobile devices, make sure the Network Camera can be accessed over the Internet. For more information on how to set up the Network Camera over the Internet, please refer to Setup the Network Camera over the Internet on page 8.

To utilize this feature, please check the following settings on your Network Camera:

1. Because most players on 3GPP mobile phones do not support RTSP authentication, make sure the authentication mode of RTSP streaming is set to disable.
   For more information, please refer to RTSP Streaming on page 47.

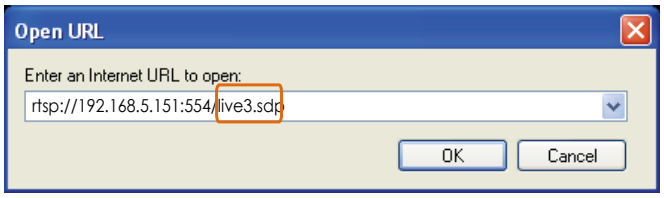
2. As the bandwidth on 3G networks is limited, you will not be able to use a large video size. Please set the video streaming parameters as listed below.
   For more information, please refer to Viewing Window on page 69.

Video Mode	MPEG-4
Frame size	176 x 144
Maximum frame rate	5 fps
Intra frame period	1S
Video quality (Constant bit rate)	40kbps

3. As most ISPs and players only allow RTSP streaming through port number 554, please set the RTSP port to 554. For more information, please refer to RTSP Streaming on page 47.

4. Launch the player on the 3GPP-compatible mobile devices (ex. Real Player).

5. Type the following URL commands into the player.
   The address format is rtsp://<public ip address of your camera>:<rtsp port>/<RTSP streaming access name for stream 3>.
   For example:

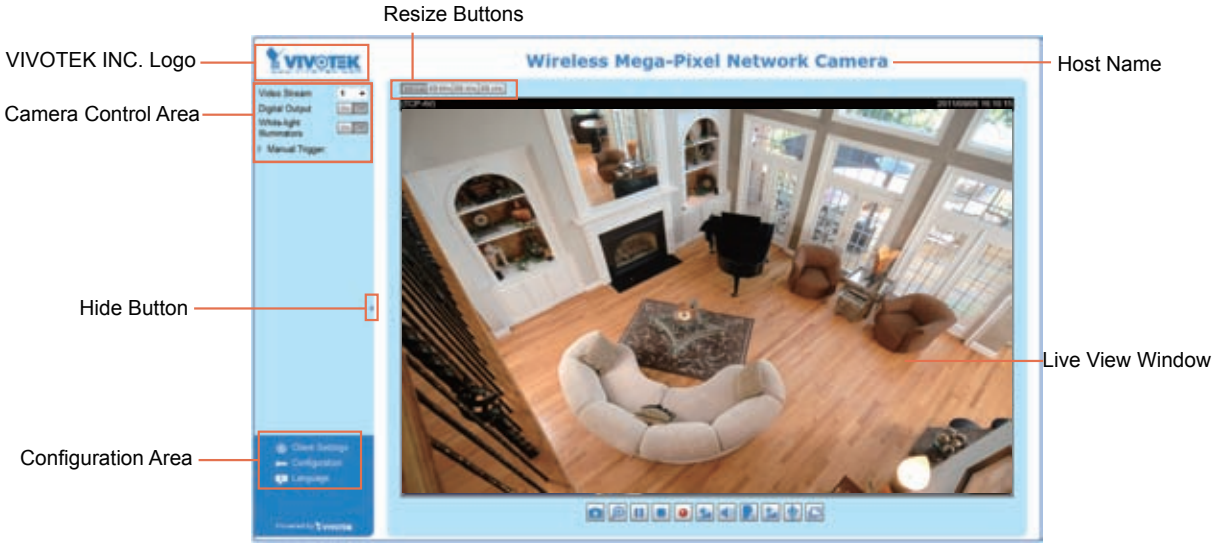


Using VIVOTEK Recording Software

The product software CD also contains recording software, allowing simultaneous monitoring and video recording for multiple Network Cameras. Please install the recording software; then launch the program to add the Network Camera to the Channel list. For detailed information about how to use the recording software, please refer to the user's manual of the software or download it from http://www.vivotek.com.

Main Page

This chapter explains the layout of the main page. It is composed of the following sections: VIVOTEK INC. Logo, Host Name, Camera Control Area, Configuration Area, Menu, and Live Video Window.



VIVOTEK INC. Logo

Click this logo to visit the VIVOTEK website.

Host Name

The host name can be customized to fit your needs. For more information, please refer to System on page 25.

Camera Control Area

Video Stream: This Network Camera supports multiple streams (streams 1 to 3) simultaneously. You can select any one for live viewing. For more information about multiple streams, please refer to page 69 for detailed information.

Digital Output: Click to turn the digital output device on or off.

White-light Illuminator: Click to turn on the white LED (available on IP8133 and IP8133W). The LED also turns on when triggered by the occurrence of an event. Please refer to page 85 for more information. Light adjustment setting is found on page 27.

Manual Trigger: Click to enable/disable an event trigger manually. Please configure an event setting on Application page before enable this function. A total of 3 event settings can be configured. For more information about event settings, please refer to page 82.
If you want to hide this item on the homepage, please go to the Homepage Layout page to uncheck “show manual trigger button”. Please refer to page 78 for detailed illustration.

Configuration Area

Client Settings: Click this button to access the client setting page. For more information, please refer to Client Settings on page 22.

Configuration: Click this button to access the configuration page of the Network Camera. It is suggested that a password be applied to the Network Camera so that only the administrator can configure the Network Camera. For more information, please refer to Configuration on page 24.

Language: Click this button to choose a language for the user interface. Language options are available

in: English, Deutsch, Español, Français, Italiano, 日本語 , Português, 簡体中文 , and 繁體中文 .

Hide Button

You can click the hide button to hide the control panel or display the control panel.

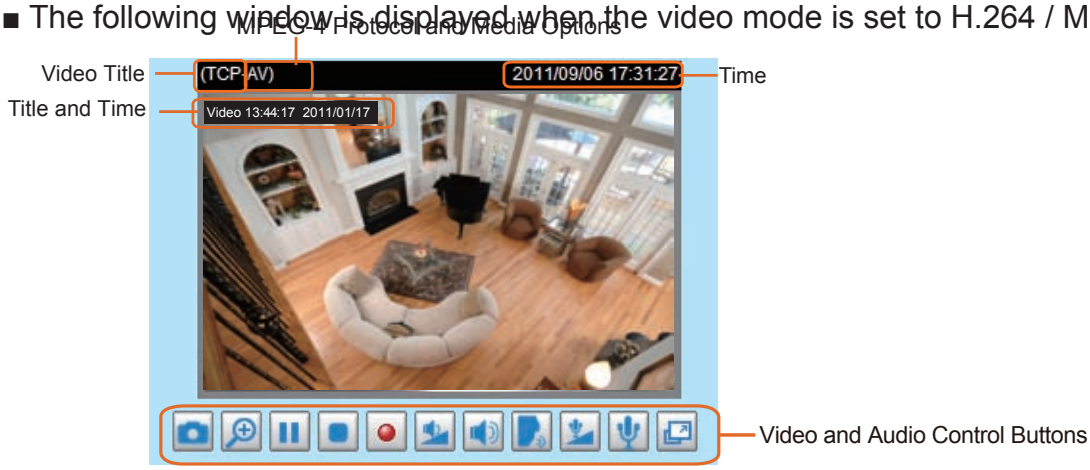
Resize Buttons

:

Click the Auto button, the video cell will resize automatically to fit the monitor.
Click 100% is to display the original homepage size.
Click 50% is to resize the homepage to 50% of its original size.
Click 25% is to resize the homepage to 25% of its original size.

Live Video Window

■ The following window is displayed when the video mode is set to H.264 / MPEG-4:



Video Title: The video title can be configured. For more information, please refer to Video Settings on page 64.

H.264 / MPEG-4 Protocol and Media Options: The transmission protocol and media options for H.264 / MPEG-4 video streaming. For further configuration, please refer to Client Settings on page 22.

Time: Display the current time. For further configuration, please refer to Video Settings on page 64.

Title and Time: The video title and time can be stamped on the streaming video. For further configuration, please refer to Video Settings on page 64.

Video and Audio Control Buttons: Depending on the Network Camera model and Network Camera configuration, some buttons may not be available.

 Snapshot: Click this button to capture and save still images. The captured images will be displayed in a pop-up window. Right-click the image and choose **Save Picture As** to save it in JPEG (*.jpg) or BMP (*.bmp) format.

 Digital Zoom: Click and uncheck “Disable digital zoom” to enable the zoom operation. The navigation screen indicates the part of the image being magnified. To control the zoom level, drag the slider bar. To move to a different area you want to magnify, drag the navigation screen.

Pause: Pause the transmission of the streaming media. The button becomes the Resume button after clicking the Pause button.

Stop: Stop the transmission of the streaming media. Click the Resume button to continue transmission.

Start MP4 Recording: Click this button to record video clips in MP4 file format to your computer. Press the Stop MP4 Recording button to end recording. When you exit the web browser, video recording stops accordingly. To specify the storage destination and file name, please refer to MP4 Saving Options on page 23 for details.

Volume: When the Mute function is not activated, move the slider bar to adjust the volume on the local computer.

Mute: Turn off the volume on the local computer. The button becomes the Audio On button after clicking the Mute button.

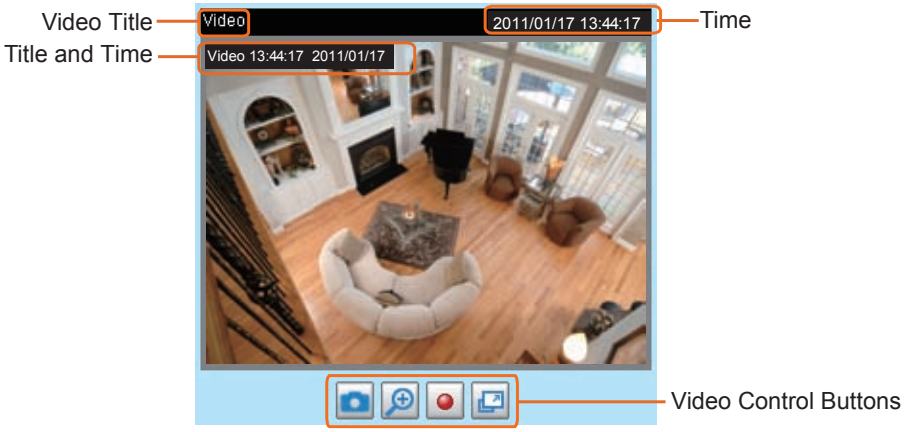
Talk: Click this button to talk to people around the Network Camera. Audio will project from the embedded/external speaker connected to the Network Camera. Click this button again to end conversation.

Mic Volume: When the Mute function is not activated, move the slider bar to adjust the microphone volume.

Mute: Turn off the Mic volume on the local computer. The button becomes the Mic On button after clicking the Mute button.

Full Screen: Click this button to switch to full screen mode. Press the “Esc” key to switch back to normal mode.

■ The following window is displayed when the video mode is set to MJPEG:



Video Title: The video title is user-configurable. For more information, please refer to Video Settings on page 64.

Time: Display the current time. For more information, please refer to Video Settings on page 64.

Title and Time: Video title and time can be stamped on the streaming video. For more information, please refer to Video Settings on page 64.

Video Control Buttons: Depending on the Network Camera model and Network Camera configuration,

some buttons may not be available.

Snapshot: Click this button to capture and save still images. The captured images will be displayed in a pop-up window. Right-click the image and choose **Save Picture As** to save it in JPEG (*.jpg) or BMP (*.bmp) format.

Digital Zoom: Click and uncheck “Disable digital zoom” to enable the zoom operation. The navigation screen indicates the part of the image being magnified. To control the zoom level, drag the slide bar. To move to a different area you want to magnify, drag the navigation screen.

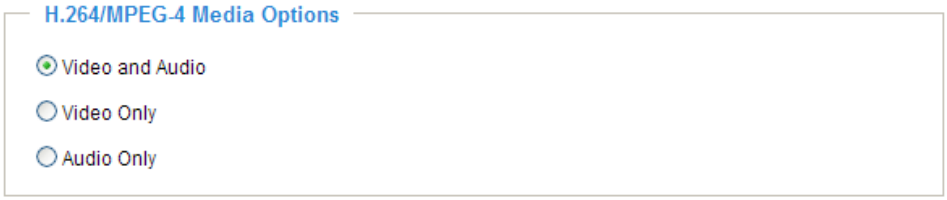
Start MP4 Recording: Click this button to record video clips in MP4 file format to your computer. Press the Stop MP4 Recording button to end recording. When you exit the web browser, video recording stops accordingly. To specify the storage destination and file name, please refer to MP4 Saving Options on page 23 for details.

Full Screen: Click this button to switch to full screen mode. Press the “Esc” key to switch back to normal mode.

Client Settings

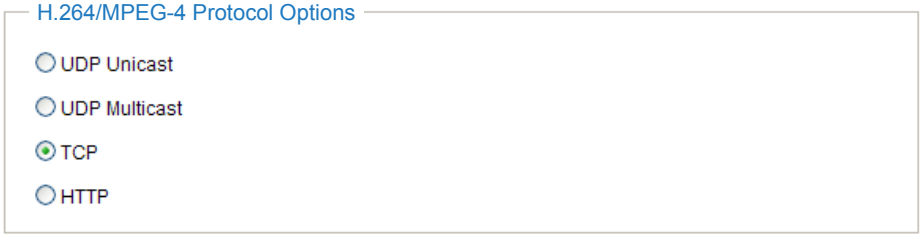
This chapter explains how to select the stream transmission mode and saving options on the local computer. When completed with the settings on this page, click **Save** on the page bottom to enable the settings.

H.264 / MPEG-4 Media Options



Select to stream video or audio data or both. This is enabled only when the video mode is set to H.264 or MPEG-4.

H.264 / MPEG-4 Protocol Options



Depending on your network environment, there are four transmission modes of H.264 or MPEG-4 streaming:

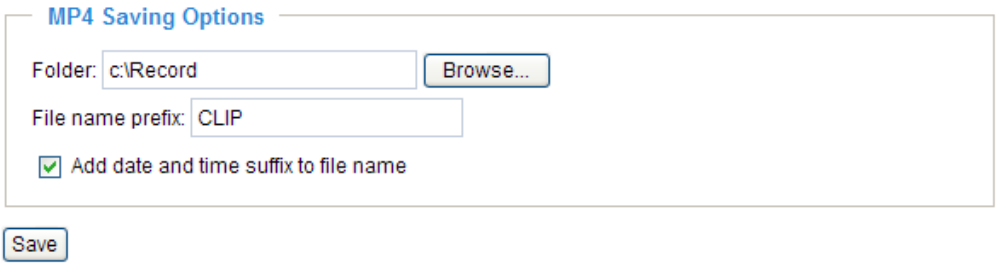
UDP unicast: This protocol allows for more real-time video streams. However, network packets may be lost due to network burst traffic and images may be broken. Activate UDP connection when occasions require time-sensitive responses and the video quality is less important. Note that each unicast client connecting to the server takes up additional bandwidth and the Network Camera allows up to ten simultaneous accesses.

UDP multicast: This protocol allows multicast-enabled routers to forward network packets to all clients requesting streaming media. This helps to reduce the network transmission load of the Network Camera while serving multiple clients at the same time. Note that to utilize this feature, the Network Camera must be configured to enable multicast streaming at the same time. For more information, please refer to RTSP Streaming on page 47.

TCP: This protocol guarantees the complete delivery of streaming data and thus provides better video quality. The downside of this protocol is that its real-time effect is not as good as that of the UDP protocol.

HTTP: This protocol allows the same quality as TCP protocol without needing to open specific ports for streaming under some network environments. Users inside a firewall can utilize this protocol to allow streaming data through.

MP4 Saving Options

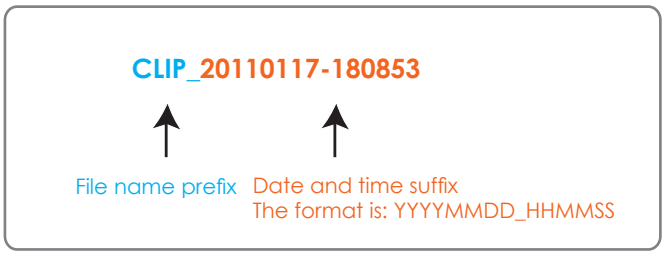


Users can record live video as they are watching it by clicking Start MP4 Recording on the main page. Here, you can specify the storage destination and file name.

Folder: Specify a storage destination for the recorded video files.

File name prefix: Enter the text that will be appended to the front of the video file name.

Add date and time suffix to the file name: Select this option to append the date and time to the end of the file name.



Local Streaming Buffer Time

Due to the unsteady bandwidth flow, the live streaming may lag and not be very smoothly. If you enable this option, the live streaming will be stored on the camera's buffer area for a few seconds before playing on the live viewing window. This will help you see the streaming more smoothly.
If you enter 3000 Millisecond, the streaming will delay 3 seconds.

Configuration

Click **Configuration** on the main page to enter the camera setting pages. Note that only Administrators can access the configuration page.

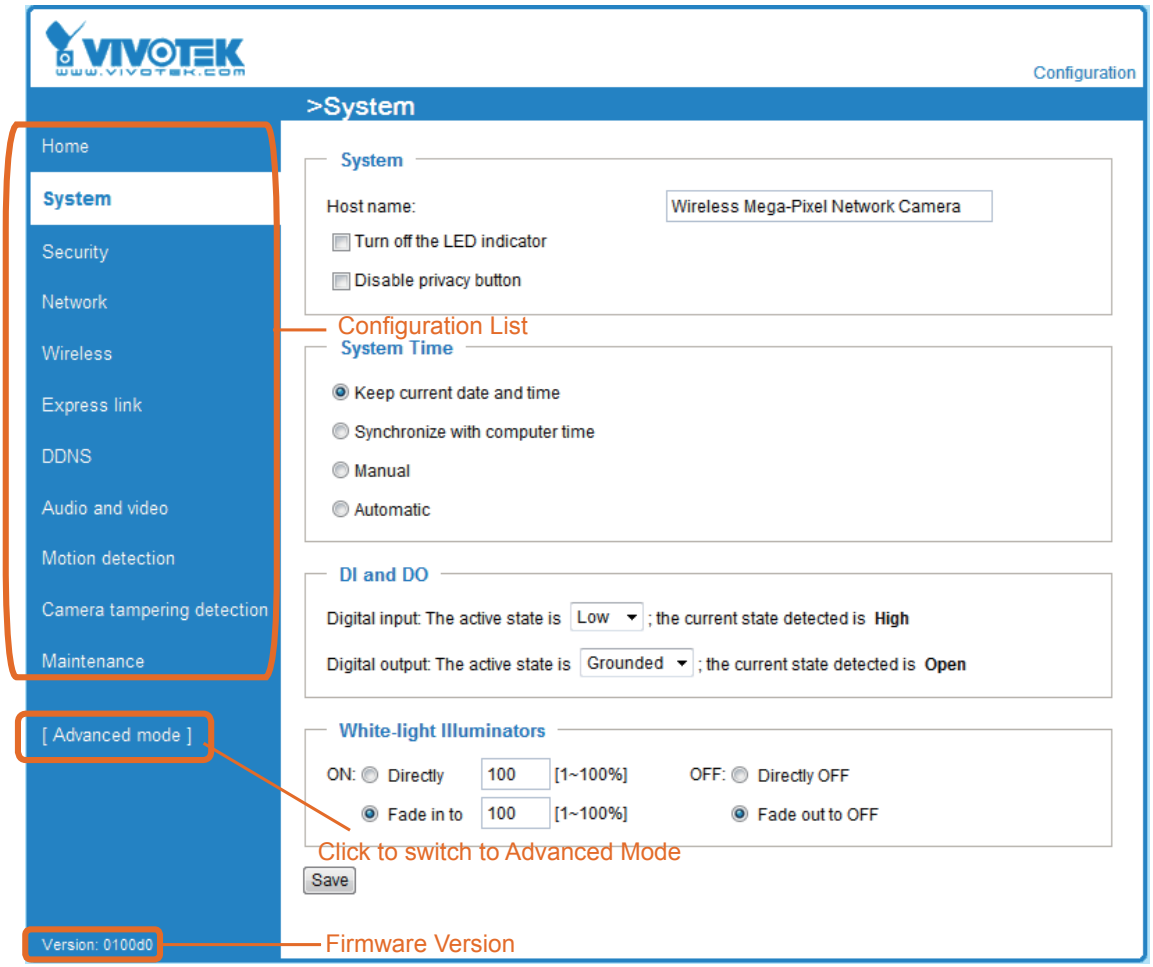
VIVOTEK offers an easy-to-use user interface that helps you set up your network camera with minimal effort. To simplify the setting procedure, two types of user interfaces are available: Advanced Mode for professional users and Basic Mode for entry-level users. Some advanced functions (HTTPS/ SNMP/ Access list/ Homepage layout/ Application/ Recording/ System log/ View parameters) are not displayed in Basic Mode.

If you want to set up advanced functions, please click **[Advanced Mode]** on the bottom of the configuration list to quickly switch to Advanced Mode.

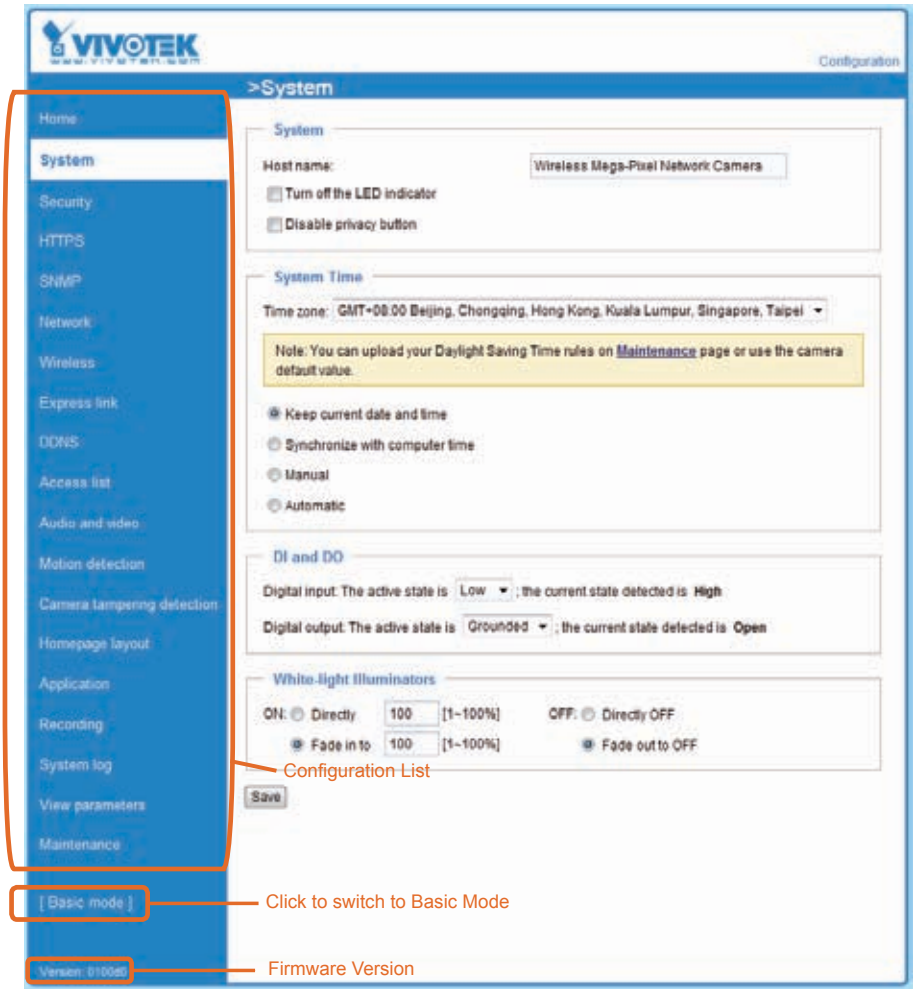
In order to simplify the user interface, the detailed information will be hidden unless you click on the function item. When you click on the first sub-item, the detailed information for the first sub-item will be displayed; when you click on the second sub-item, the detailed information for the second sub-item will be displayed and that of the first sub-item will be hidden.

The following is the interface of the Basic Mode and the Advanced Mode:

Basic Mode



Advanced Mode



Each function on the configuration list will be explained in the following sections. Those functions that are displayed only in Advanced Mode are marked with Advanced Mode. If you want to set up advanced functions, please click **[Advanced Mode]** on the bottom of the configuration list to quickly switch over.

System

This section explains how to configure the basic settings for the Network Camera, such as the host name and system time. It is composed of the following three columns: System, System Time, and DI and DO. When finished with the settings on this page, click **Save** at the bottom of the page to enable the settings.

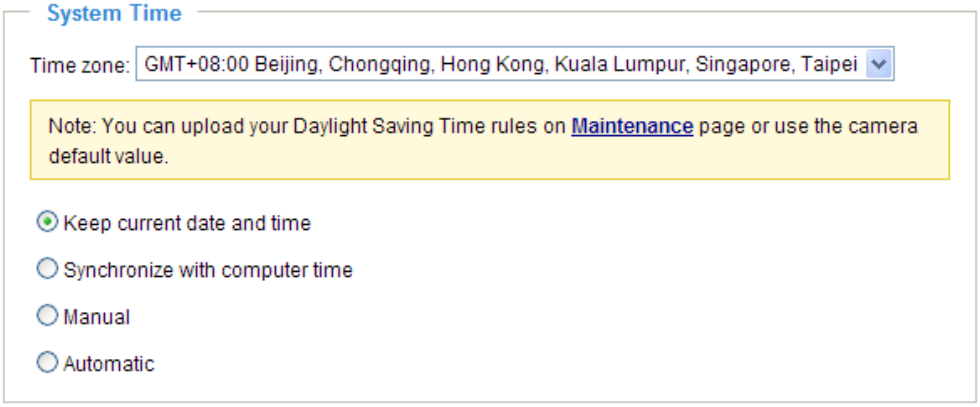
System

Host name: Enter a desired name for the Network Camera. The text will be displayed at the top of the main page.

Turn off the LED indicators: If you do not want to let others know that the network camera is in operation, you can select this option to turn off the LED indicators.

Disable Privacy Button: The privacy button is on the rear panel of the camera. You are able to manually stop the operation of video monitoring for privacy concern by pushing the button. Later on, you can push the button again to resend the video. If you want to disable the function of privacy button, please select this item.

System Time



Keep current date and time: Select this option to preserve the current date and time of the Network Camera. The Network Camera's internal real-time clock maintains the date and time even when the power of the system is turned off.

Synchronize with computer time: Select this option to synchronize the date and time of the Network Camera with the local computer. The read-only date and time of the PC is displayed as updated.

Manual: The administrator can enter the date and time manually. Note that the date and time format are [yyyy/mm/dd] and [hh:mm:ss].

Automatic: The Network Time Protocol is a protocol which synchronizes computer clocks by periodically querying an NTP Server.

NTP server: Assign the IP address or domain name of the time-server. Leaving the text box blank connects the Network Camera to the default time servers.

Update interval: Select to update the time using the NTP server on an hourly, daily, weekly, or monthly basis.

Time zone Advanced Mode: Select the appropriate time zone from the list. If you want to upload Daylight Savings Time rules on the Maintenance page, please refer to Upload / Export Daylight Saving Time Configuration File on page 104 for details.

DI and DO

Digital input: Select High or Low to define normal status for the digital input. The Network Camera will report the current status.

Digital output: Select Grounded or Open to define normal status for the digital output. The Network Camera will show whether the trigger is activated or not.

White-light Illuminators

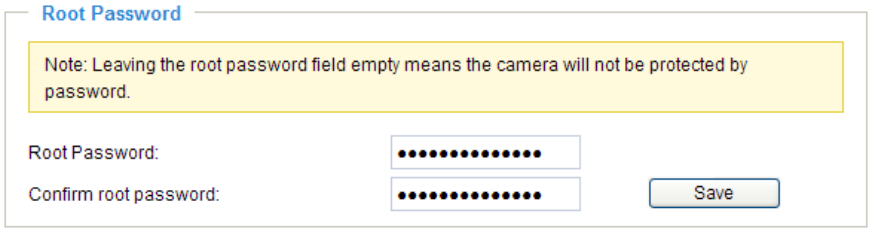
ON: The white-light LED allows you to illuminate the monitored area when an event occurs. You can select to turn on the LED directly to a configurable brightness level or gradually light up to that level. You can manually enter a percentage number in the text fields. The white-light LED can be manually lit using a button on the home page or passively triggered by a camera event.

OFF: Select to turn off the LED directly or let the light gradually fade out.

Security

This section explains how to enable password protection and create multiple accounts.

Root Password

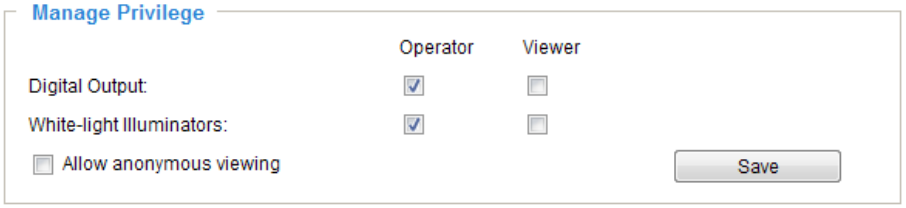


The administrator account name is “root”, which is permanent and can not be deleted. If you want to add more accounts in the Manage User column, please apply the password for the “root” account first.

1. Type the password identically in both text boxes, then click **Save** to enable password protection.
2. A window will prompt for authentication; type the correct user’s name and password in their respective fields to access the Network Camera.

Manage Privilege

Advanced Mode

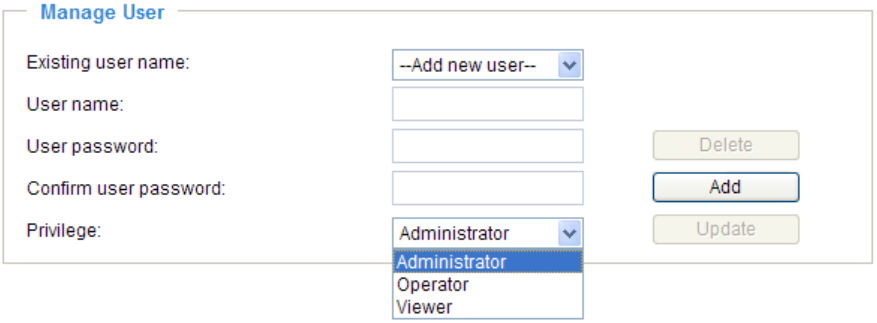


Digital Output: You can modify the manage privilege of operators or viewers. Check or uncheck the item, then click **Save** to enable the settings. If you give Viewers the privilege, Operators will also have the ability to control the Network Camera through the main page. (Please refer to Main Page on page 24.)

White-light Illuminators: Determines if an operator or viewer can control the white LED.

Allow anonymous viewing: If you check this item, any client can access the live stream without entering a User ID and Password.

Manage User



Administrators can add up to 20 user accounts.

1. Input the new user’s name and password.
2. Select the privilege level for the new user account. Click **Add** to enable the setting.

Access rights are sorted by user privilege (Administrator, Operator, and Viewer). Only administrators can access the Configuration page. Though operators cannot access the Configuration page, they can use the URL Commands to get and set the value of parameters. For more information, please refer to URL Commands of the Network Camera on page 107. Viewers access only the main page for live viewing.

Here you also can change a user’s access rights or delete user accounts.

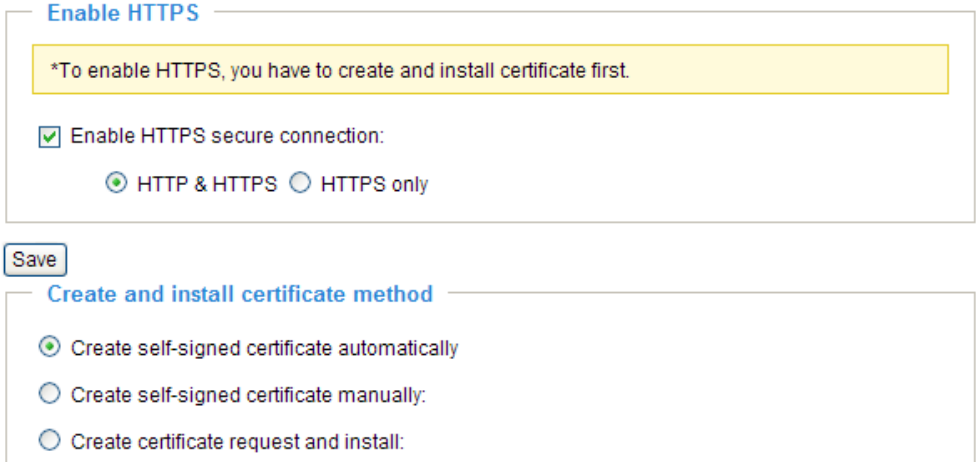
1. Select an existing account to modify.
2. Make necessary changes and click **Update** or **Delete** to enable the setting.

HTTPS (Hypertext Transfer Protocol over SSL) Advanced Mode

This section explains how to enable authentication and encrypted communication over SSL (Secure Socket Layer). It helps protect streaming data transmission over the Internet on higher security level.

Enable HTTPS

Check this item to enable HTTPS communication, then select a connection option: "HTTP & HTTPS" or "HTTPS only". Note that you have to create and install a certificate first in the second column before clicking the **Save** button.

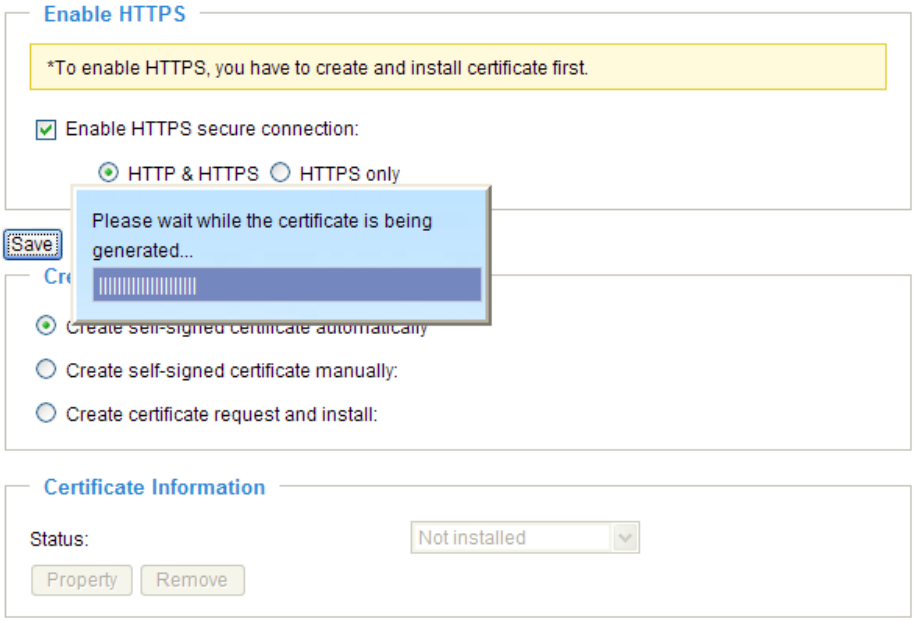


Create and Install Certificate Method

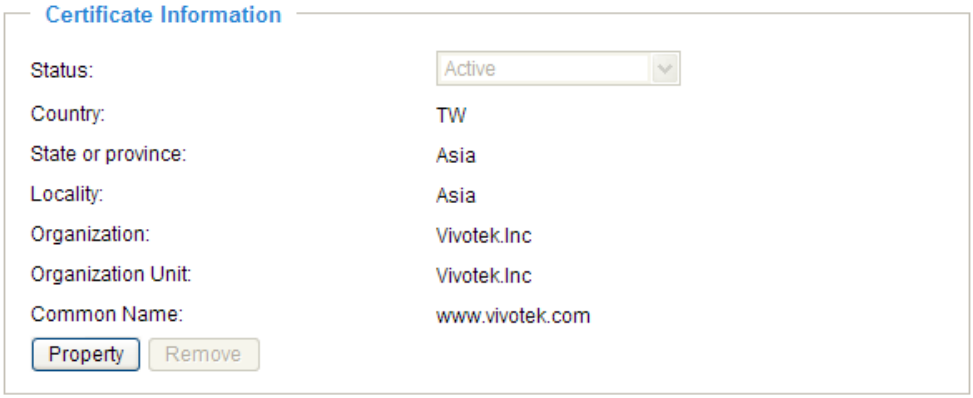
Before using HTTPS for communication with the Network Camera, a **Certificate** must be created first. There are three ways to create and install a certificate:

Create self-signed certificate automatically

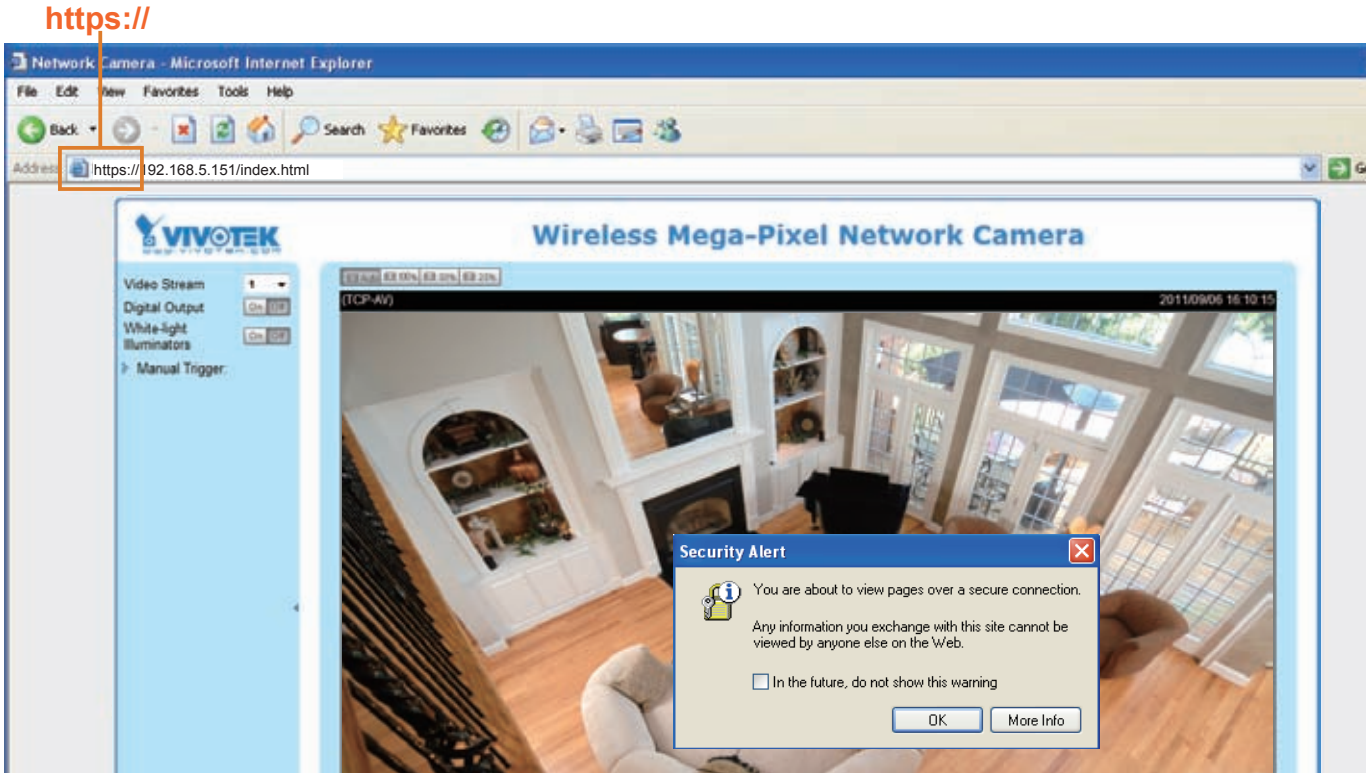
1. Select this option.
2. In the first column, check **Enable HTTPS secure connection**, then select a connection option: “HTTP & HTTPS” or “HTTPS only”.
3. Click **Save** to generate a certificate.

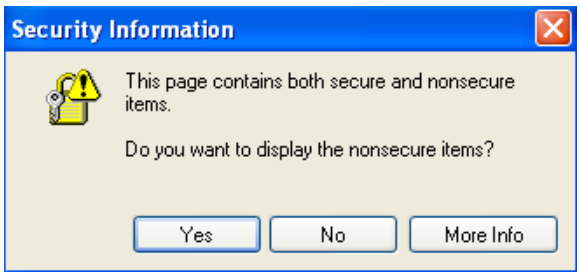


4. The Certificate Information will automatically be displayed in the third column as shown below. You can click **Property** to view detailed information about the certificate.



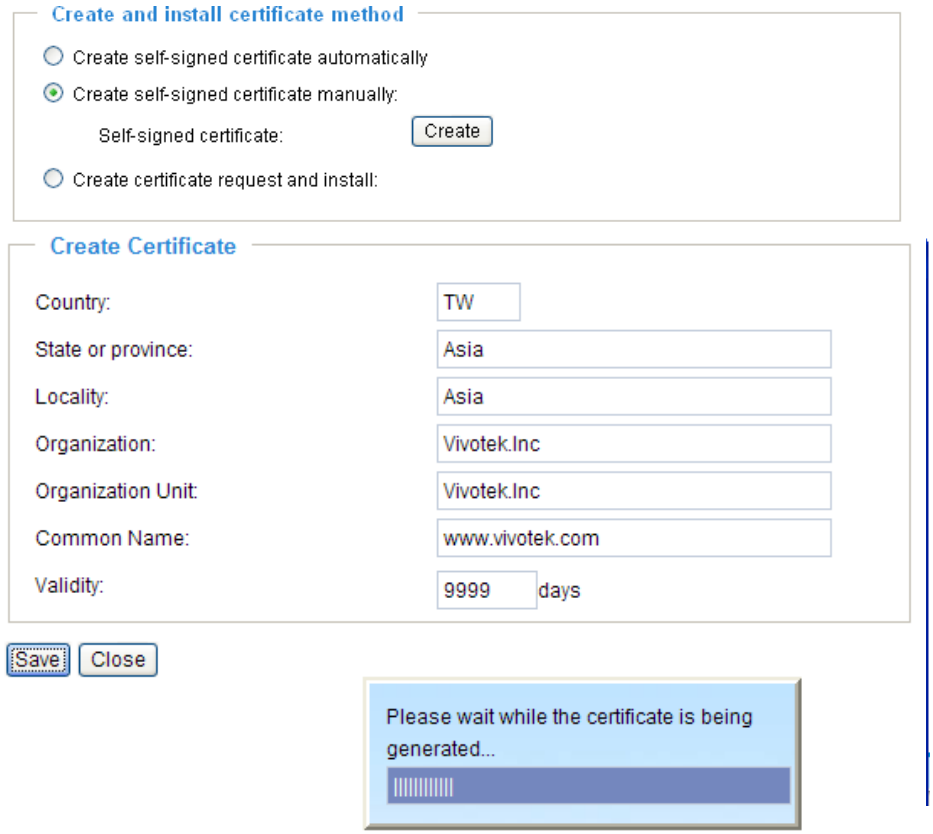
5. Click **Home** to return to the main page. Change the address from "http://" to "https://" in the address bar and press **Enter** on your keyboard. Some Security Alert dialogs will pop up. Click **OK** or **Yes** to enable HTTPS.



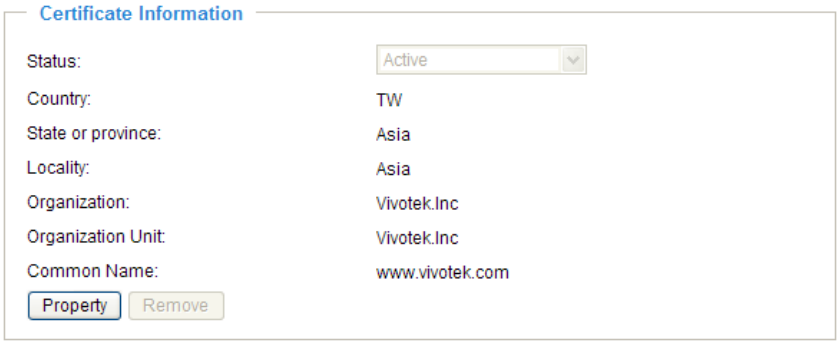


Create self-signed certificate manually

1. Select this option.
2. Click **Create** to open the Create Certificate page, then click **Save** to generate the certificate.

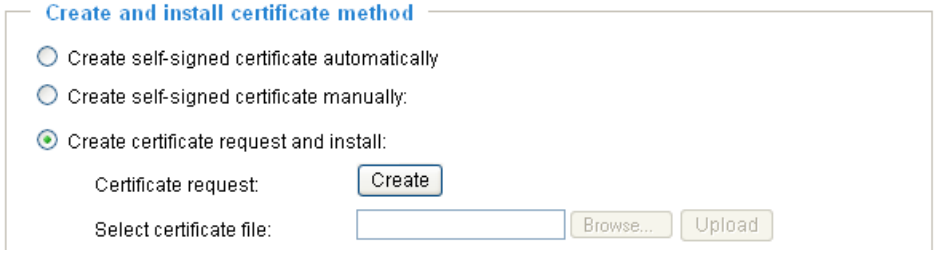


3. The Certificate Information will automatically be displayed in the third column as shown below. You can click **Property** to see detailed information about the certificate.

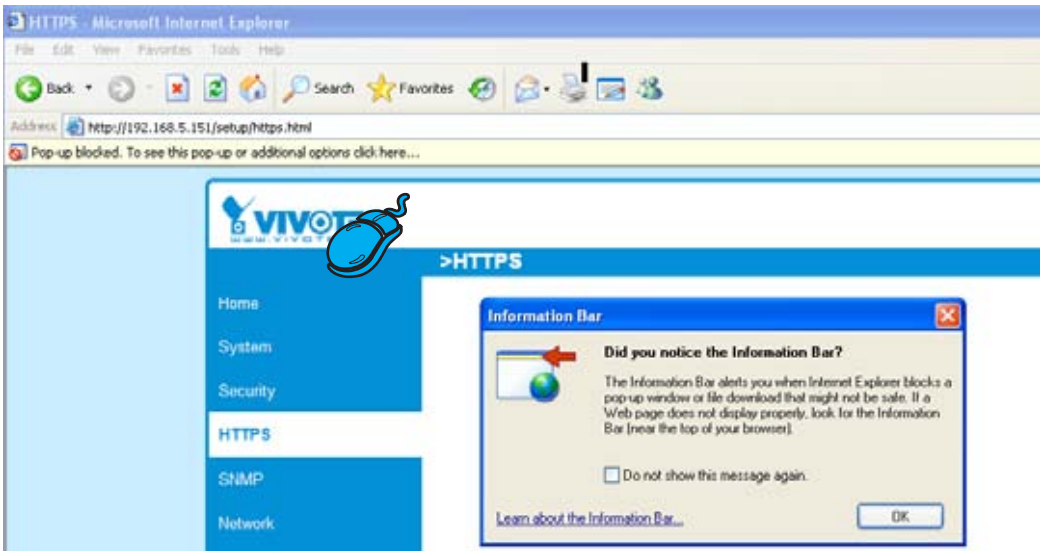


Create certificate and install : Select this option if you want to create a certificate from a certificate authority.

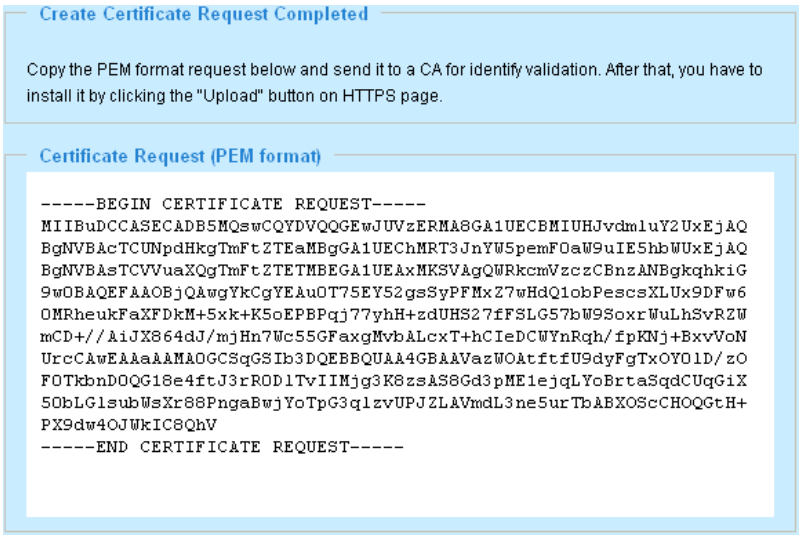
1. Select this option.
2. Click **Create** to open the Create Certificate page, then click **Save** to generate the certificate.



3. If you see the following Information bar, click **OK** and click on the Information bar at the top of the page to allow pop-ups.

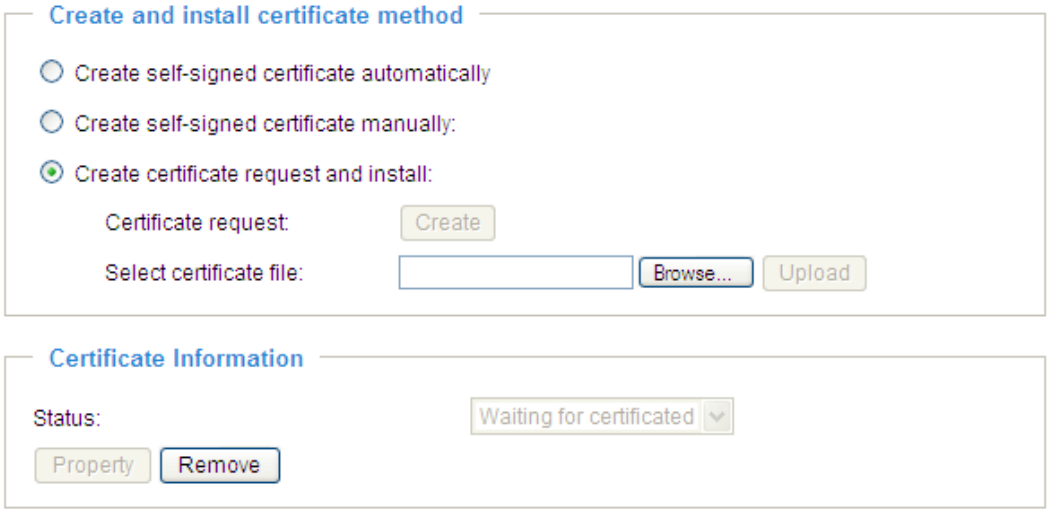


4. The pop-up window shows an example of a certificate request.



5. Look for a trusted certificate authority that issues digital certificates. Enroll the Network Camera. Wait for the certificate authority to issue a SSL certificate; click **Browse...** to search for the issued

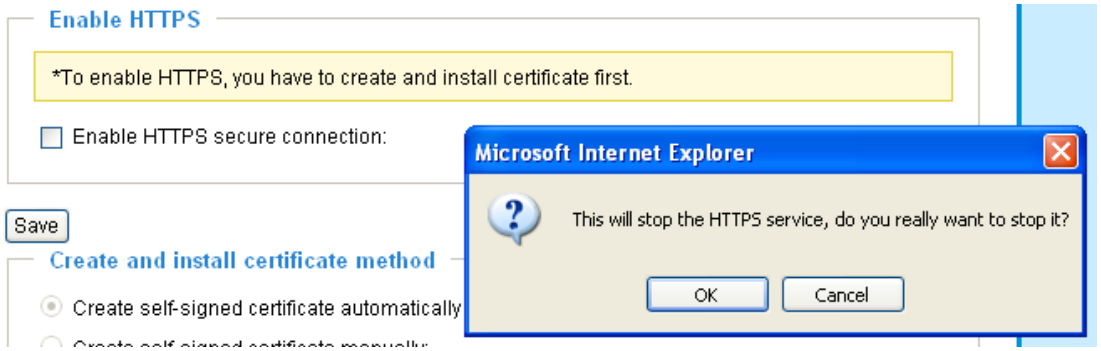
certificate, then click Upload in the second column.



NOTE:

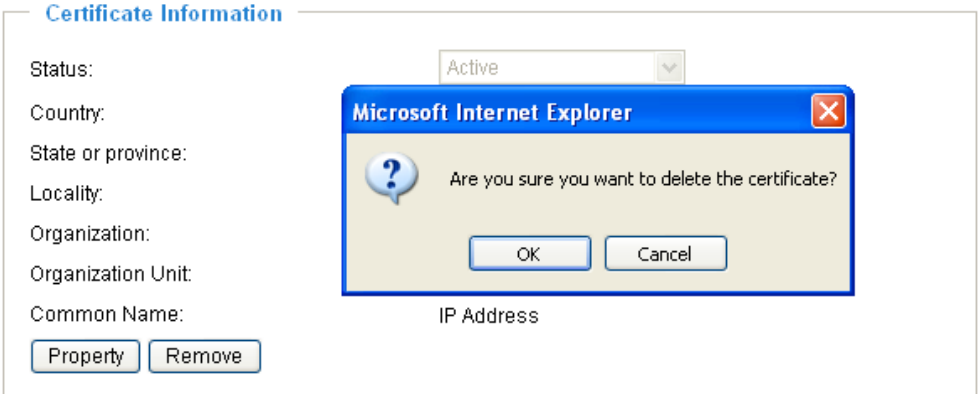
► *How do I cancel the HTTPS settings?*

1. *Uncheck **Enable HTTPS secure connection** in the first column and click **Save**; a warning dialog will pop up.*
2. *Click **OK** to disable HTTPS.*



3. *The webpage will redirect to a non-HTTPS page automatically.*

► *If you want to create and install other certificates, please remove the existing one. To remove the signed certificate, uncheck **Enable HTTPS secure connection** in the first column and click **Save**. Then click **Remove** to erase the certificate.*



SNMP (Simple Network Management Protocol) Advanced Mode

This section explains how to use the SNMP on the network camera. The Simple Network Management Protocol is an application layer protocol that facilitates the exchange of management information between network devices. It helps network administrators to remotely manage network devices and find, solve network problems with ease.

■ The SNMP consists of the following three key components:
1. Manager: Network-management station (NMS), a server which executes applications that monitor and control managed devices.
2. Agent: A network-management software module on a managed device which transfers the status of managed devices to the NMS.
3. Managed device: A network node on a managed network. For example: routers, switches, bridges, hubs, computer hosts, printers, IP telephones, network cameras, web server, and database.

Before configuring SNMP settings on the this page, please enable your NMS first.

SNMP Configuration

Enable SNMPv1, SNMPv2c
Select this option and enter the names of Read/Write community and Read Only community according to your NMS settings.

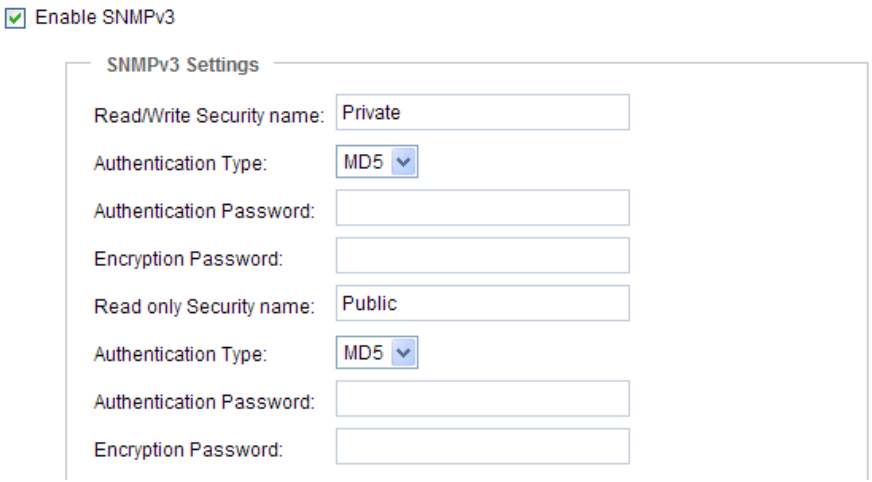
Enable SNMPv3
This option contains cryptographic security, a higher security level, which allows you to set the Authentication password and the Encryption password.

■ Security name: According to your NMS settings, choose Read/Write or Read Only and enter the community name.

■ Authentication type: Select MD5 or SHA as the authentication method.

■ Authentication password: Enter the password for authentication (at least 8 characters).

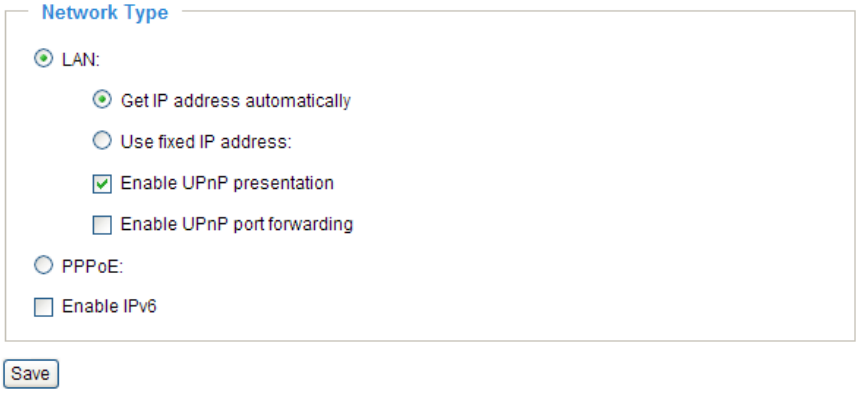
■ Encryption password: Enter a password for encryption (at least 8 characters).



Network

This section explains how to configure a wired network connection for the Network Camera.

Network Type

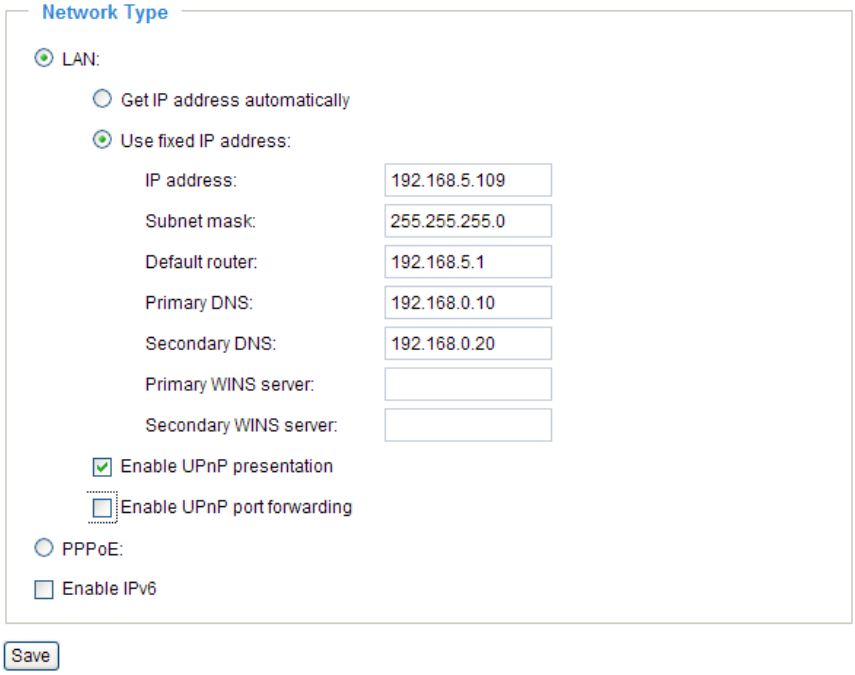


LAN

Select this option when the Network Camera is deployed on a local area network (LAN) and is intended to be accessed by local computers. The default setting for the Network Type is LAN. Remember to click **Save** when you complete the Network setting.

Get IP address automatically: Select this option to obtain an available dynamic IP address assigned by the DHCP server each time the camera is connected to the LAN.

Use fixed IP address: Select this option to manually assign a static IP address to the Network Camera.



1. You can make use of VIVOTEK Installation Wizard 2 on the software CD to easily set up the Network Camera on LAN. Please refer to Software Installation on page 11 for details.
2. Enter the Static IP, Subnet mask, Default router, and Primary DNS provided by your ISP.

Subnet mask: This is used to determine if the destination is in the same subnet. The default value is “255.255.255.0”.

Default router: This is the gateway used to forward frames to destinations in a different subnet. Invalid router setting will fail the transmission to destinations in different subnet.

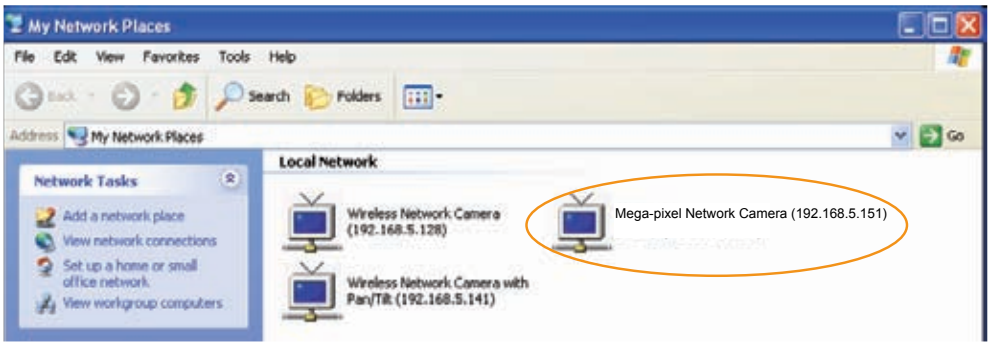
Primary DNS: The primary domain name server that translates hostnames into IP addresses.

Secondary DNS: Secondary domain name server that backups the Primary DNS.

Primary WINS server: The primary WINS server that maintains the database of computer name and IP address.

Secondary WINS server: The secondary WINS server that maintains the database of computer name and IP address.

Enable UPnP presentation: Select this option to enable UPnP™ presentation for your Network Camera so that whenever a Network Camera is presented to the LAN, shortcuts of connected Network Cameras will be listed in My Network Places. You can click the shortcut to link to the web browser. Currently, UPnP™ is supported by Windows XP or later. Note that to utilize this feature, please make sure the UPnP™ component is installed on your computer.



Enable UPnP port forwarding: To access the Network Camera from the Internet, select this option to allow the Network Camera to open ports on the router automatically so that video streams can be sent out from a LAN. To utilize of this feature, make sure that your router supports UPnP™ and it is activated.

PPPoE (Point-to-point over Ethernet)

Select this option to configure your Network Camera to make it accessible from anywhere as long as there is an Internet connection. Note that to utilize this feature, it requires an account provided by your ISP.

Follow the steps below to acquire your Network Camera's public IP address.

1. Set up the Network Camera on the LAN.
2. Go to Home > Configuration > Application > Server Settings (please refer to Server Settings on page 88) to add a new email or FTP server.
3. Go to Configuration > Application > Media Settings (please refer to Media Settings on page 91). Select System log so that you will receive the system log in TXT file format which contains the Network Camera's public IP address in your email or on the FTP server.
4. Go to Configuration > Network > Network Type. Select PPPoE and enter the user name and password provided by your ISP. Click **Save** to enable the setting.

5. The Network Camera will reboot.
6. Disconnect the power to the Network Camera; remove it from the LAN environment.

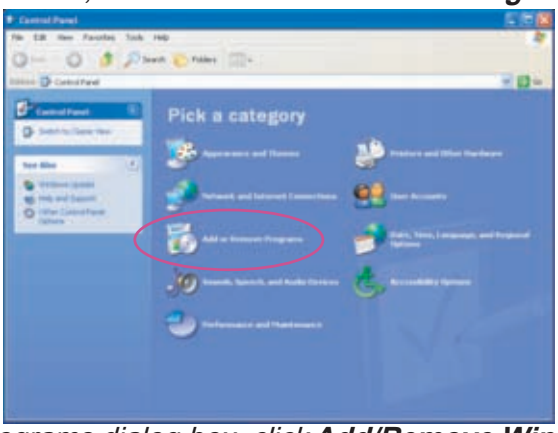
NOTE:

► *If the default ports are already used by other devices connected to the same router, the Network Camera will select other ports for the Network Camera.*

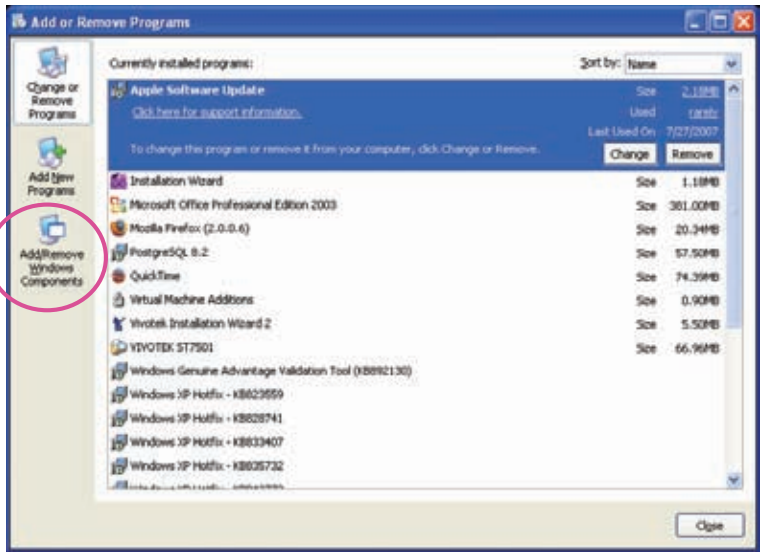
► *If UPnP™ is not supported by your router, you will see the following message:*
Error: Router does not support UPnP port forwarding.

► *Steps to enable the UPnP™ user interface on your computer:*
Note that you must log on to the computer as a system administrator to install the UPnP™ components.

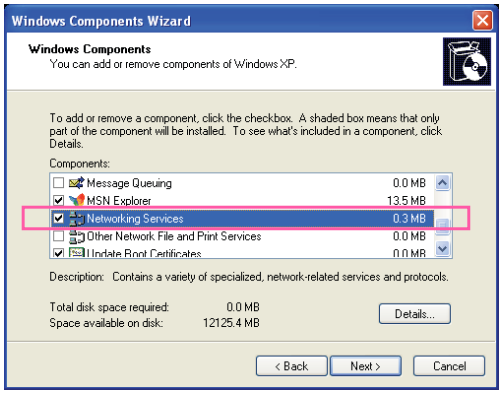
*1. Go to Start, click **Control Panel**, then click **Add or Remove Programs**.*



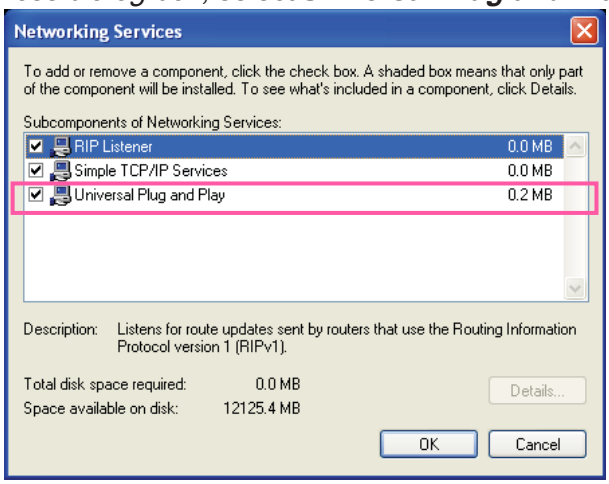
*2. In the Add or Remove Programs dialog box, click **Add/Remove Windows Components**.*



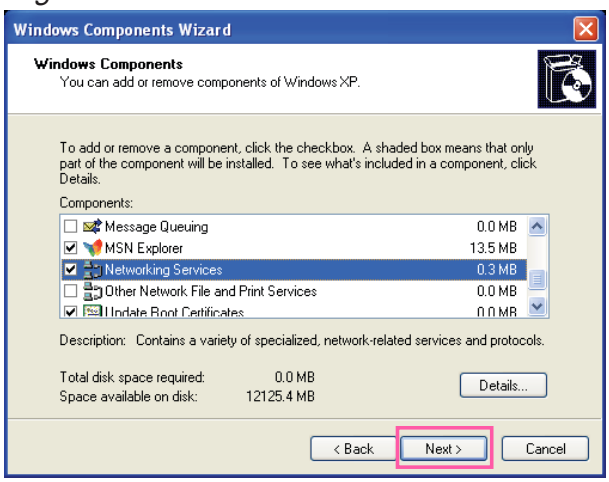
*3. In the Windows Components Wizard dialog box, select **Networking Services** and click **Details**.*



4. In the Networking Services dialog box, select ***Universal Plug and Play*** and click ***OK***.



5. Click ***Next*** in the following window.



6. Click ***Finish***. *UPnP™ is enabled.*

► *How does UPnP™ work?*
UPnP™ networking technology provides automatic IP configuration and dynamic discovery of devices added to a network. Services and capabilities offered by networked devices, such as printing and file sharing, are available among each other without the need for cumbersome network configuration. In the case of Network Cameras, you will see Network Camera shortcuts under My Network Places.

► *Enabling UPnP port forwarding allows the Network Camera to open a secondary HTTP port on the router-not HTTP port-meaning that you have to add the secondary HTTP port number to the Network Camera's public address in order to access the Network Camera from the Internet. For example, when the HTTP port is set to 80 and the secondary HTTP port is set to 8080, refer to the list below for the Network Camera's IP address.*

From the Internet	In LAN
http://203.67.124.123:8080	http://192.168.4.160 or http://192.168.4.160:8080

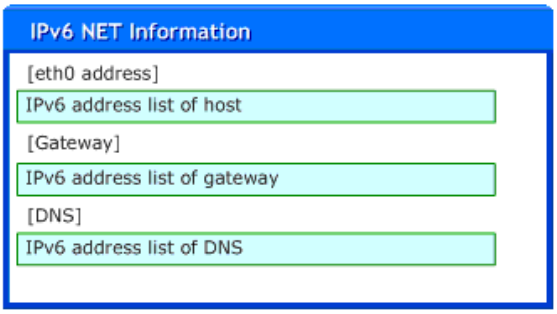
► *If the PPPoE settings are incorrectly configured or the Internet access is not working, restore the Network Camera to factory default; please refer to Restore on page 103 for details. After the Network Camera is reset to factory default, it will be accessible on the LAN.*

Enable IPv6

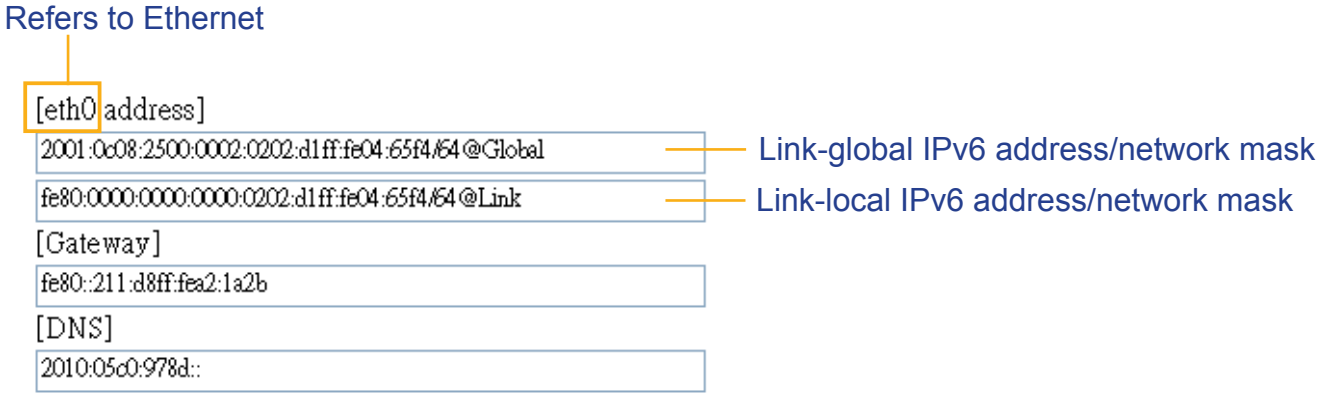
Select this option and click **Save** to enable IPv6 settings.
Please note that this only works if your network environment and hardware equipment support IPv6. The browser should be Microsoft® Internet Explorer 6.5, Mozilla Firefox 3.0 or above.

When IPv6 is enabled, by default, the network camera will listen to router advertisements and be assigned with a link-local IPv6 address accordingly.

IPv6 Information: Click this button to obtain the IPv6 information as shown below.

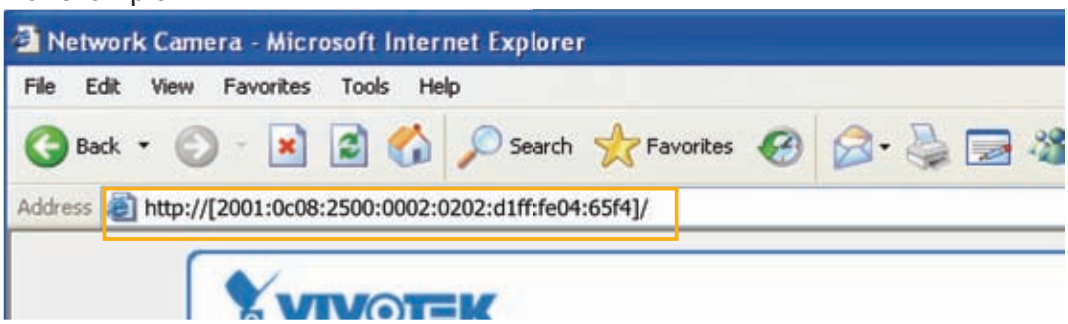


If your IPv6 settings are successful, the IPv6 address list will be listed in the pop-up window. The IPv6 address will be displayed as follows:



Please follow the steps below to link to an IPv6 address:
1. Open your web browser.
2. Enter the link-global or link-local IPv6 address in the address bar of your web browser.
3. The format should be:

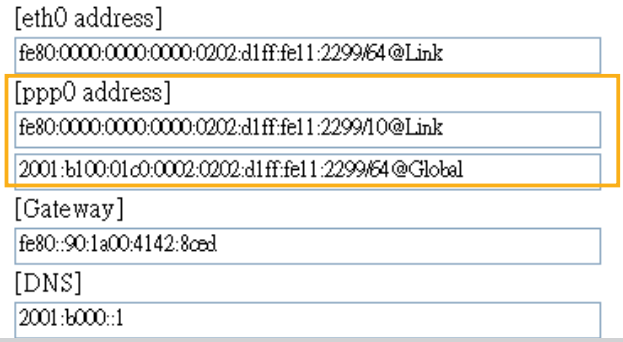
4. Press **Enter** on the keyboard or click **Refresh** button to refresh the webpage.
   For example:



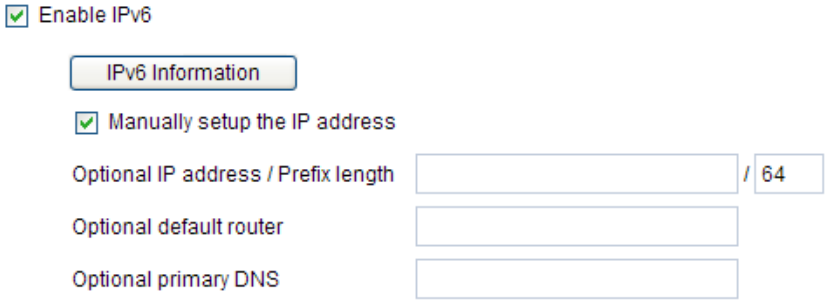
NOTE:

► *If you have a Secondary HTTP port (the default value is 8080), you can also link to the webpage in the following address format: (Please refer to **HTTP** on page 45 for detailed information.)*

► *If you choose PPPoE as the Network Type, the [PPP0 address] will be displayed in the IPv6 information column as shown below.*



Manually setup the IP address: Select this option to manually set up IPv6 settings if your network environment does not have DHCPv6 server and advertisements-enabled routers.
If you check this item, the following blanks will be displayed for you to enter the corresponding information:



IEEE 802.1x Advanced Mode

Enable this function if your network environment uses IEEE 802.1x, which is a port-based network access control. The network devices, intermediary switch/access point/hub, and RADIUS server must support and enable 802.1x settings.

The 802.1x standard is designed to enhance the security of local area networks, which provides authentication to network devices (clients) attached to a network port (wired or wireless). If all certificates between client and server are verified, a point-to-point connection will be enabled; if authentication fails, access on that port will be prohibited. 802.1x utilizes an existing protocol, the Extensible Authentication Protocol (EAP), to facilitate communication.

■ The components of a protected network with 802.1x authentication:

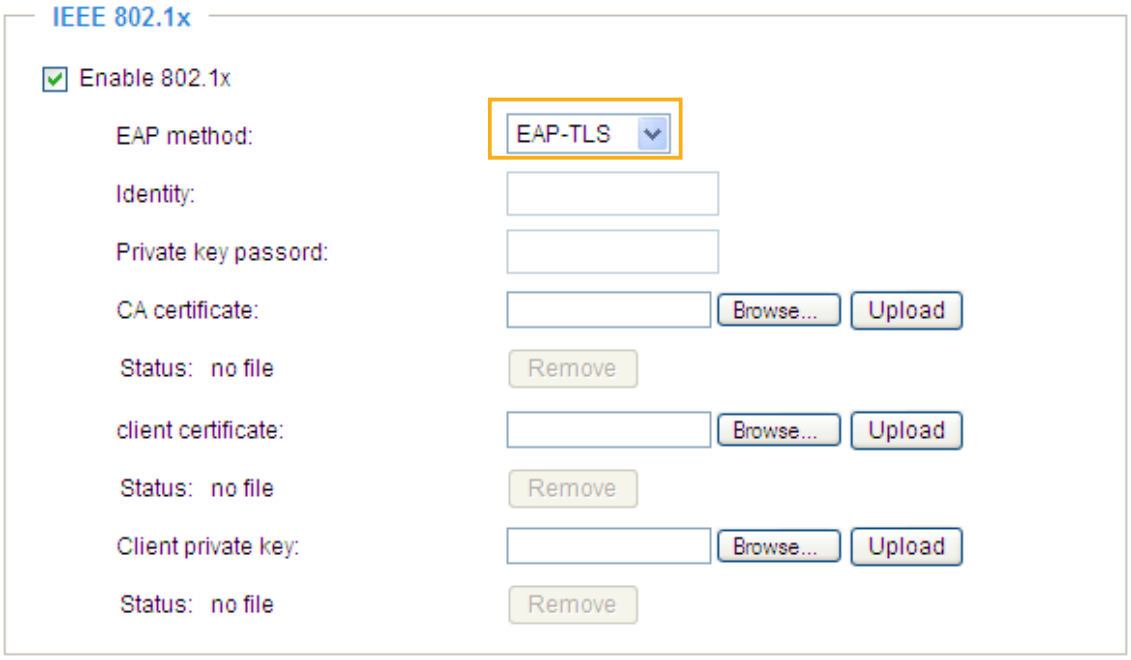
Supplicant (Network Camera) | Authenticator (Network Switch) | Authentication Server (RADIUS Server)

1. Supplicant: A client end user (camera), which requests authentication.
2. Authenticator (an access point or a switch): A “go between” which restricts unauthorized end users from communicating with the authentication server.
3. Authentication server (usually a RADIUS server): Checks the client certificate and decides whether to accept the end user’s access request.

■ VIVOTEK Network Cameras support two types of EAP methods to perform authentication: **EAP-PEAP** and **EAP-TLS**.

Please follow the steps below to enable 802.1x settings:

1. Before connecting the Network Camera to the protected network with 802.1x, please apply a digital certificate from a Certificate Authority (ie. MIS of your company) which can be validated by a RADIUS server.
2. Connect the Network Camera to a PC or notebook outside of the protected LAN. Open the configuration page of the Network Camera as shown below. Select **EAP-PEAP** or **EAP-TLS** as the EAP method. In the following blanks, enter your ID and password issued by the CA, then upload related certificate(s).

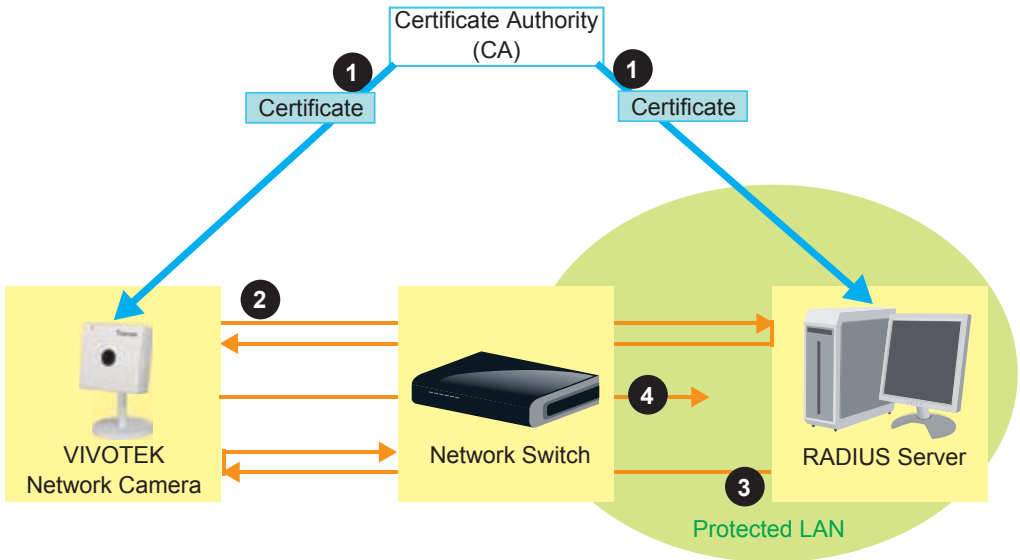


3. When all settings are complete, move the Network Camera to the protected LAN by connecting it to an 802.1x enabled switch. The devices will then start the authentication automatically.

NOTE:

► *The authentication process for 802.1x:*

1. *The Certificate Authority (CA) provides the required signed certificates to the Network Camera (the supplicant) and the RADIUS Server (the authentication server).*
2. *A Network Camera requests access to the protected LAN using 802.1X via a switch (the authenticator). The client offers its identity and client certificate, which is then forwarded by the switch to the RADIUS Server, which uses an algorithm to authenticate the Network Camera and returns an acceptance or rejection back to the switch.*
3. *The switch also forwards the RADIUS Server's certificate to the Network Camera.*
4. *Assuming all certificates are validated, the switch then changes the Network Camera's state to authorized and is allowed access to the protected network via a pre-configured port.*



QoS (Quality of Service) Advanced Mode

Quality of Service refers to a resource reservation control mechanism, which guarantees a certain quality to different services (voice, data, video, etc) on the network. Quality of service guarantees are important if the network capacity is insufficient, especially for real-time streaming multimedia applications. Quality can be defined as, for instance, a maintained level of bit rate, low latency, no packet dropping, etc.

The following are the main benefits of a QoS-aware network:
- The ability to prioritize traffic and guarantee a certain level of performance to the data flow.
- The ability to control the amount of bandwidth each application may use, and thus provide higher reliability and stability on the network.

Requirements for QoS

To utilize QoS in a network environment, the following requirements must be met:
- All network switches and routers in the network must include support for QoS.
- The network video devices used in the network must be QoS-enabled.

QoS models

CoS (the VLAN 802.1p model)

IEEE802.1p defines a QoS model at OSI Layer 2 (Data Link Layer), which is called CoS, Class of Service. It adds a 3-bit value to the VLAN MAC header, which indicates the frame priority level from 0 (lowest) to 7 (highest). The priority is set up on the network switches, which then use different queuing disciplines to forward the packets.

Below is the setting column for CoS. Enter the **VLAN ID** of your switch (0~4095) and choose the priority for each application (0~7).

If you assign Video the highest level, the switch will handle video packets first.

NOTE:

► *The VLAN Switch (802.1p) is required. The web browsing may fail if the CoS setting is incorrect.*

► *Class of Service technologies do not guarantee a level of service in terms of bandwidth and delivery time; they offer a "best-effort." Users can think of CoS as "coarsely-grained" traffic control and QoS as "finely-grained" traffic control.*

► *Though CoS is simple to manage, it lacks scalability and does not offer end-to-end guarantees since it is based on L2 protocol.*

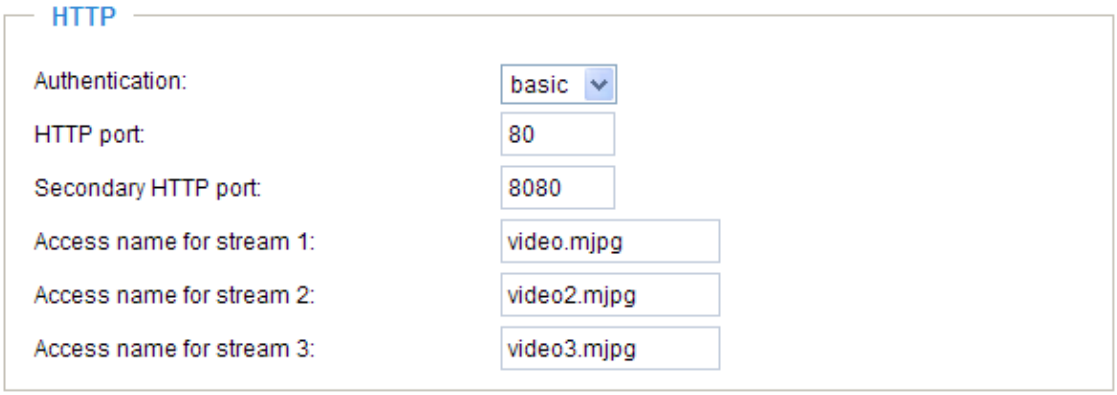
QoS/DSCP (the DiffServ model)

DSCP-ECN defines QoS at Layer 3 (Network Layer). The Differentiated Services (DiffServ) model is based on packet marking and router queuing disciplines. The marking is done by adding a field to the IP header, called the DSCP (Differentiated Services Codepoint). This is a 6-bit field that provides 64 different class IDs. It gives an indication of how a given packet is to be forwarded, known as the Per Hop Behavior (PHB). The PHB describes a particular service level in terms of bandwidth, queueing theory, and dropping (discarding the packet) decisions. Routers at each network node classify packets according to their DSCP value and give them a particular forwarding treatment; for example, how much bandwidth to reserve for it.

Below are the setting options of DSCP (DiffServ Codepoint). Specify the DSCP value for each application (0~63).

HTTP Advanced Mode

To utilize HTTP authentication, make sure that you have already set a password for the Network Camera first; please refer to Security on page 28 for details.



Authentication: Depending on your network security requirements, the Network Camera provides two types of security settings for an HTTP transaction: basic and digest.
If **basic** authentication is selected, the password is sent in plain text format and there can be potential risks of being intercepted. If **digest** authentication is selected, user credentials are encrypted using MD5 algorithm and thus provide better protection against unauthorized accesses.

HTTP port / Secondary HTTP port: By default, the HTTP port is set to 80 and the secondary HTTP port is set to 8080. They can also be assigned to another port number between 1025 and 65535. If the ports are incorrectly assigned, the following warning messages will be displayed:

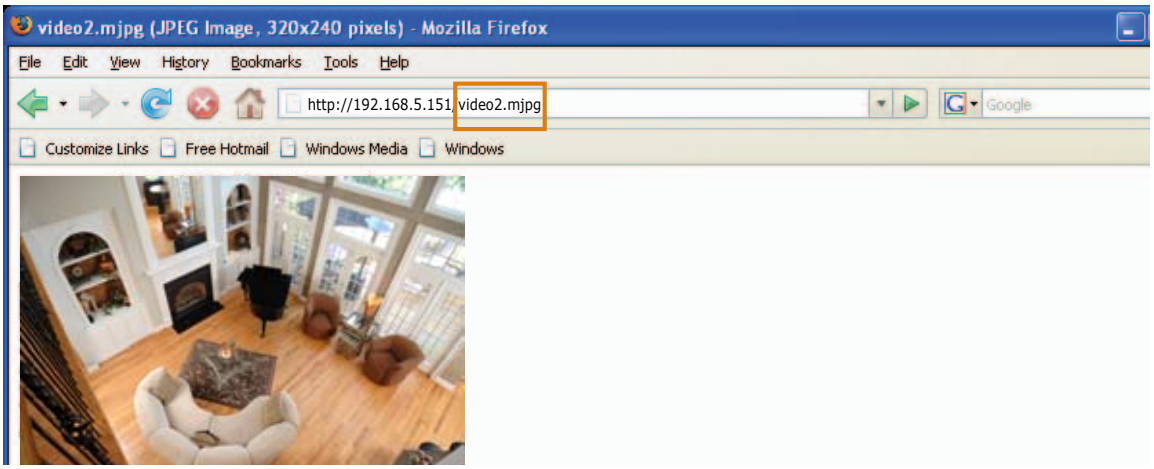
To access the Network Camera on the LAN, both the HTTP port and secondary HTTP port can be used to access the Network Camera. For example, when the HTTP port is set to 80 and the secondary HTTP port is set to 8080, refer to the list below for the Network Camera's IP address.

On the LAN
http://192.168.4.160 or http://192.168.4.160:8080

Access name for stream 1 ~ 3: This Network camera supports multiple streams simultaneously. The access name is used to differentiate the streaming source. Users can click **Configuration > Audio and video > Video Settings** to set up the video quality of linked streams. For more information about how to set up the video quality, please refer to Viewing Windows on page 69.

When using Mozilla Firefox or Netscape to access the Network Camera and the video mode is set to JPEG, users will receive video comprised of continuous JPEG images. This technology, known as "server push", allows the Network Camera to feed live pictures to Mozilla Firefox and Netscape.

URL command -- http://<ip address>:<http port>/<access name for stream 1 ~ 3>
For example, when the Access name for stream 2 is set to video2.mjpg:
1. Launch Mozilla Firefox or Netscape.
2. Type the above URL command in the address bar. Press **Enter**.
3. The JPEG images will be displayed in your web browser.



NOTE:

► *Microsoft® Internet Explorer does not support server push technology; therefore, access to the camera will fail using http://<ip address>:<http port>/<access name for stream 1 ~ 3>.*

HTTPS

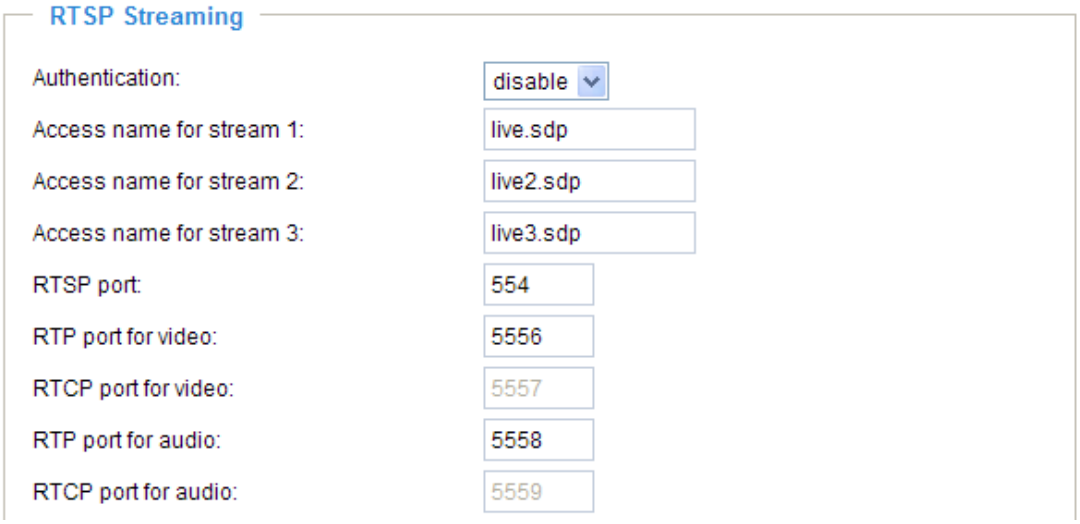
By default, the HTTPS port is set to 443. It can also be assigned to another port number between 1025 and 65535.

FTP

The FTP server allows the user to save recorded video clips. You can utilize VIVOTEK's Installation Wizard 2 to upgrade the firmware via FTP server. By default, the FTP port is set to 21. It also can be assigned to another port number between 1025 and 65535.

RTSP Streaming

To utilize RTSP streaming authentication, make sure that you have set a password for the Network Camera first; please refer to Security on page 28 for details.

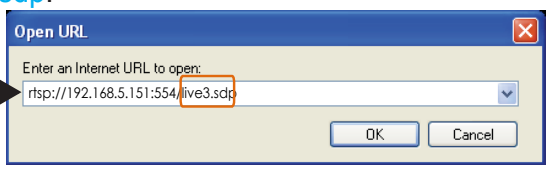


Authentication: Depending on your network security requirements, the Network Camera provides three types of security settings for streaming via RTSP protocol: disable, basic, and digest.
If **basic** authentication is selected, the password is sent in plain text format, but there can be potential risks of it being intercepted. If **digest** authentication is selected, user credentials are encrypted using MD5 algorithm, thus providing better protection against unauthorized access.
The availability of the RTSP streaming for the three authentication modes is listed in the following table:

	Quick Time player	Real Player
Disable	O	O
Basic	O	O
Digest	O	X

Access name for stream 1 ~ 3: This Network Camera supports multiple streams simultaneously. The access name is used to differentiate the streaming source.
If you want to use an RTSP player to access the Network Camera, you have to set the video mode to H.264 / MPEG-4 and use the following RTSP URL command to request transmission of the streaming data.
rtsp://<ip address>:<rtsp port>/<access name for stream1 ~ 3>
For example, when the access name for stream 3 is set to live.sdp:

1. Launch an RTSP player.
2. Choose File > Open URL. A URL dialog box will pop up.
3. Type the above URL command in the text box.
4. The live video will be displayed in your player as shown below.

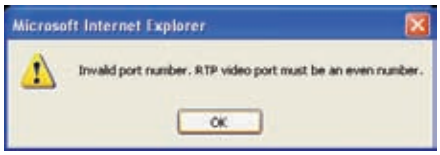


RTSP port /RTP port for video/ RTCP port for video

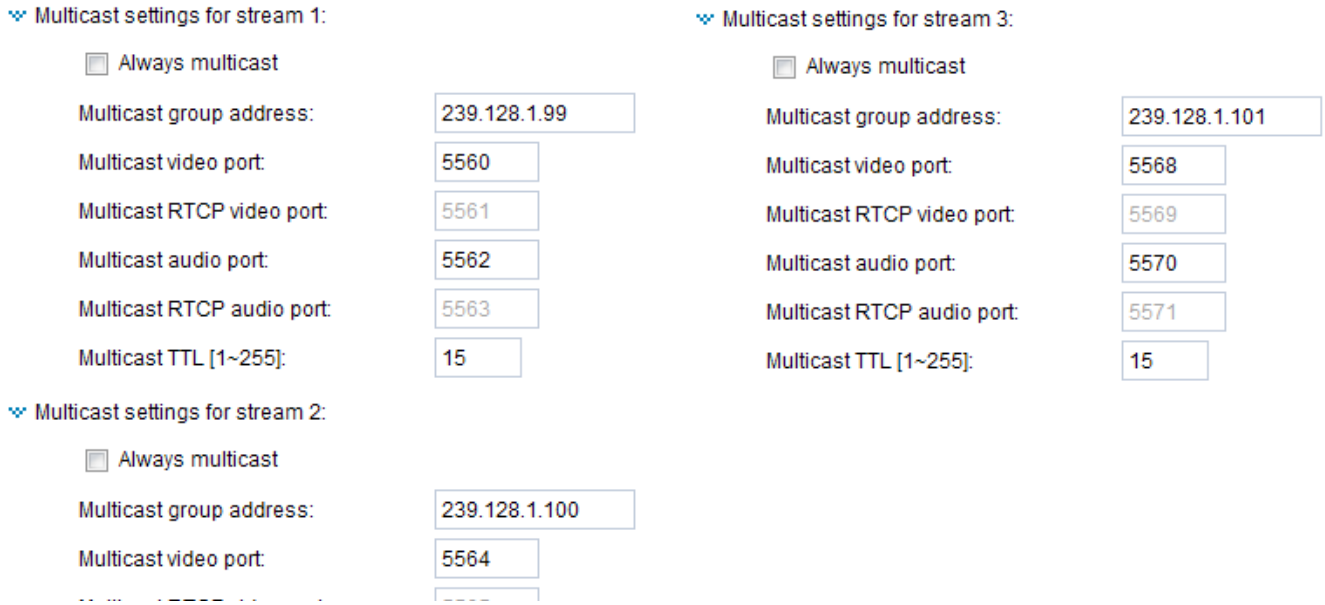
- RTSP (Real-Time Streaming Protocol) controls the delivery of streaming media. By default, the port number is set to 554.
- The RTP (Real-time Transport Protocol) is used to deliver video data to the clients. By default, the RTP port for video is set to 5556.
- The RTCP (Real-time Transport Control Protocol) allows the Network Camera to transmit the data by monitoring the Internet traffic volume. By default, the RTCP port for video is set to 5557.

The ports can be changed to values between 1025 and 65535. The RTP port must be an even number and the RTCP port is the RTP port number plus one, and thus is always an odd number. When the RTP port changes, the RTCP port will change accordingly.

If the RTP ports are incorrectly assigned, the following warning message will be displayed:



Multicast settings for stream 1 ~ 3: Click the items to display the detailed configuration information. Select the Always multicast option to enable multicast for stream 1 ~ 3.



Unicast video transmission delivers a stream through point-to-point transmission; multicast, on the other hand, sends a stream to the multicast group address and allows multiple clients to acquire the stream at the same time by requesting a copy from the multicast group address. Therefore, enabling multicast can effectively save Internet bandwidth.

The ports can be changed to values between 1025 and 65535. The multicast RTP port must be an even number and the multicast RTCP port number is the multicast RTP port number plus one, and thus is always odd. When the multicast RTP port changes, the multicast RTCP port will change accordingly.

If the multicast RTP video ports are incorrectly assigned, the following warning message will be displayed:

Multicast TTL [1~255]: The multicast TTL (Time To Live) is the value that tells the router the range a packet can be forwarded.

Wireless (IP8133W)

Manual Configuration:

Setting up wireless cameras' connections can be tricky. The configuration process involves hardwire connection to your LAN for initial setup and wireless connection to AP. To switch between the connection types, you have to physically disconnect the 5V DC connector. For example, when you are finished with initial setup via LAN, you have to remove the RJ-45 LAN cable and disconnect the DC power jack, and then reconnect the power.

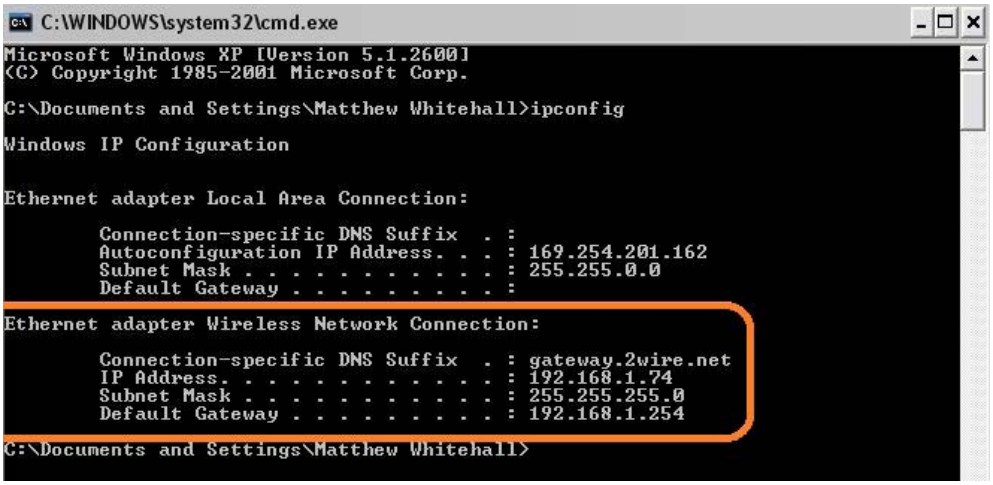
When you are performing the initial setup via LAN, the wireless antenna can be left in place.

To set up a wireless connection with the camera,

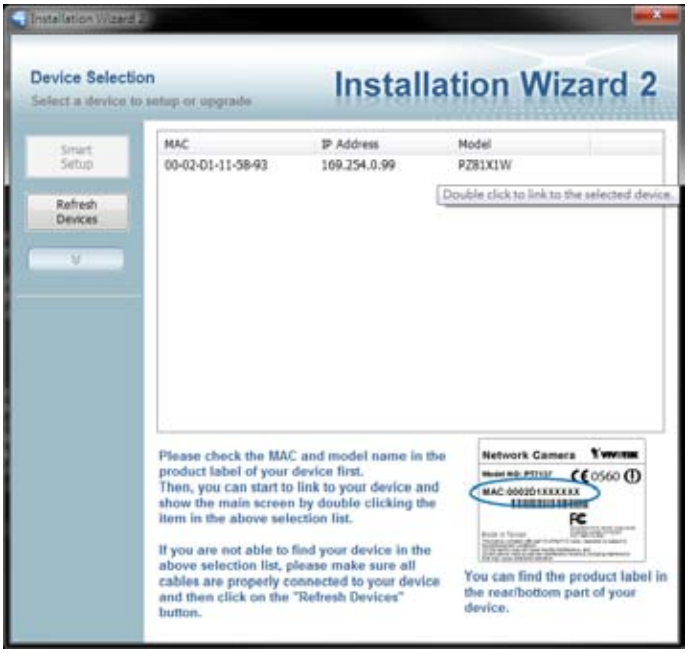
1. You must already have a wireless AP and wireless connection available. Find out the name of your wireless network by a click on your Windows System Tray. Jot down the name of the network.

For connection using the wireless Ad-hoc mode, please refer to page 58.

2. You may need to set up static IPs for making a wireless connection. You can find related information using the "ipconfig" command in a command prompt window.



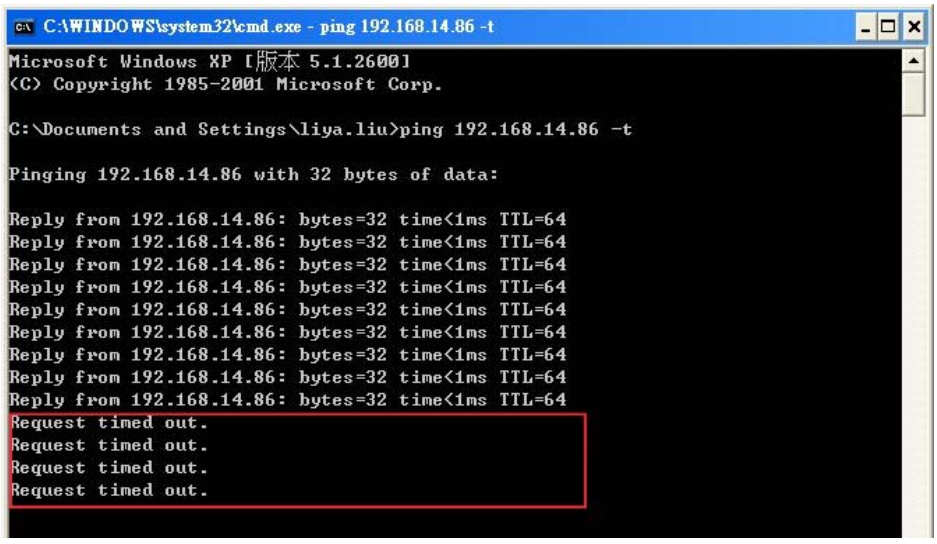
3. Attach a LAN cable between your wireless camera and router. Use the IW2 utility in the product CD to locate the camera in LAN. Double-click on the IP address to start an IE session with the camera.



4. Enter the **Configuration** > **Wireless** menu, and enter the name (**SSID**) of the existing wireless network, channel number, and other related information. See the following pages for more details. You may enter the **Configuration** > **Network** page to setup a DHCP or a static IP.

5. **You may then use the ping command to detect if your camera is switching from "wired" connection to "wireless" connection.** Open a command prompt window (or click on Windows Start menu, type "cmd" in the Run command field). Ping the camera's LAN port IP address (use the <ping xxx.xxx.xx.xx –t> argument in the command).

   Watch closely when the pinging process displays "Request timed out." That means the wireless connection is taking over. Unplug your LAN cable immediately.



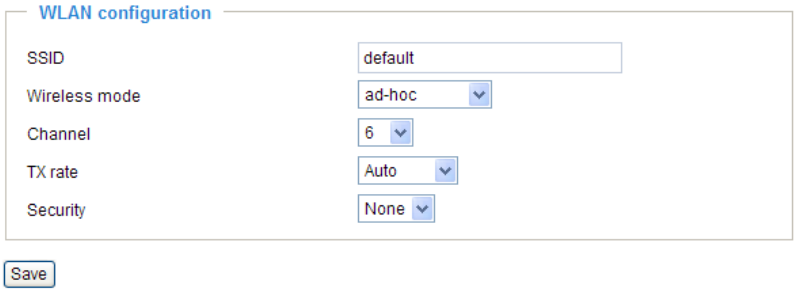
6. The camera will automatically reset itself. You can then access the camera via a wireless connection.

Below are more information about encryption and other wireless-related settings.

SSID (Service Set Identifier): This is the name that identifies a wireless network. Access Points and wireless clients attempting to connect to a specific WLAN (Wireless Local Area Network) must use the same SSID. The default setting is “default”. Note: The maximum length for an SSID is 32 single-byte characters and cannot consist of “, <, >, or blank spaces. Note that the SSID is case-sensitive.

Wireless mode: Click on the pull-down menu to select from the following options:

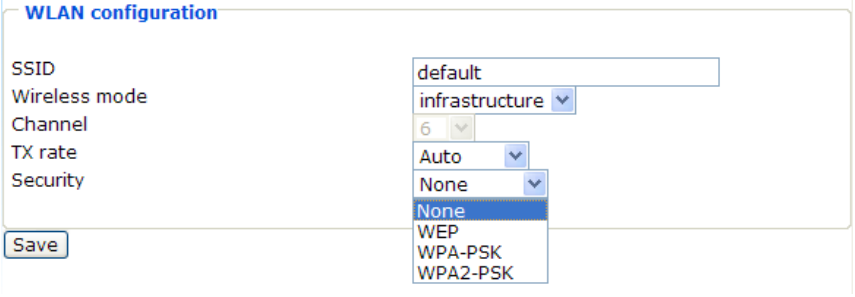
- Infrastructure: Connect the Network Camera to the WLAN via an Access Point. (default setting)
- Ad-Hoc: Connect the Network Camera directly to a host equipped with a wireless adapter in a peer-to-peer environment.



Channel: While in infrastructure mode, the channel is selected automatically to match the channel setting of the selected Access Point. In Ad-Hoc mode, the channel must be manually set to the same channel for each wireless adapter. The default channel setting depends on the installed region.

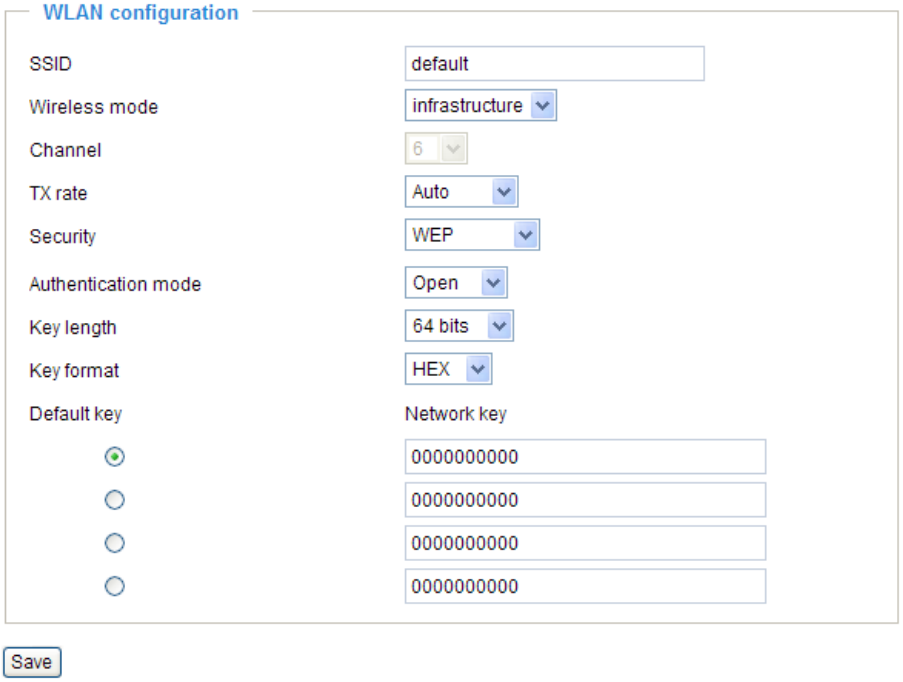
TX rate: This field is for selecting the maximum transmission rate over the network. The default setting is “auto”, that is, the Network Camera will try to connect to other wireless devices with highest transmission rate.

Security: Select the data encrypt method. There are four types, including: none, WEP, WPA-PSK, and WPA2-PSK.



1. None: No data encryption.

2. WEP (Wired Equivalent Privacy): This allows communication only with other devices with identical WEP settings.



■ Authentication Mode: Choose one of the following modes. The default setting is “Open”.
Open – Communicates the key across the network.
Shared – Allows communication only with other devices with identical WEP settings.

■ Key length: The administrator can set the key length to 64 or 128 bits.
The default setting is “64 bits”.

■ Key format: Hexadecimal or ASCII. The fault setting is “HEX”.
HEX digits consist of the numbers 0~9 and the letters A-F.
ASCII is a code for representing English letters as numbers from 0-127 except “, <, > , and the space character which are reserved.

■ Network Key: Enter a key in either hexadecimal or ASCII format.
You can select different key lengths, the acceptable input lengths are as follows:
64-bit key length: 10 Hex digits or 5 characters.
128-bit key length: 26 Hex digits or 13 characters.

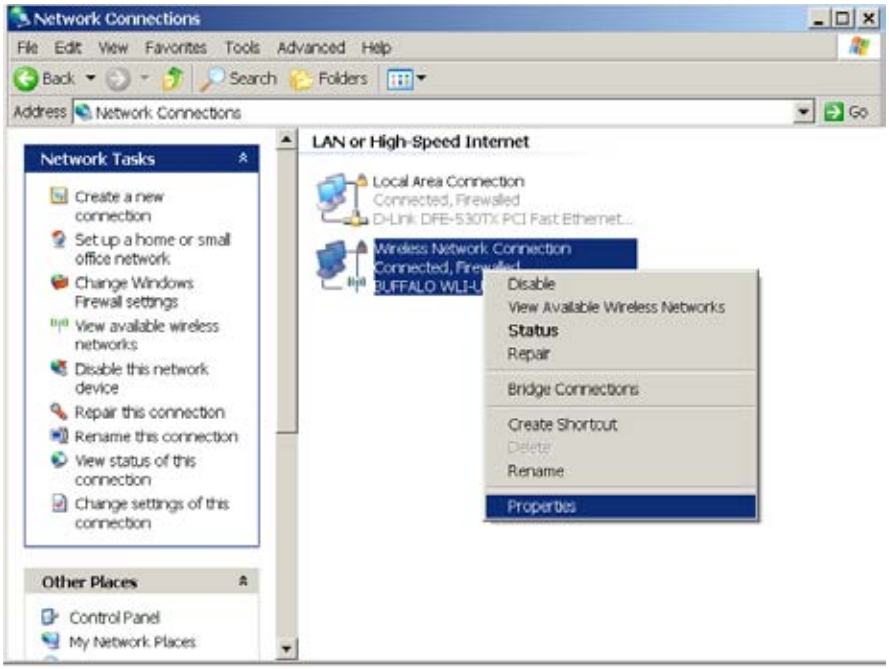
NOTE:

► *When 22(“), 3C(<), or 3E(>) are input as network keys, the key format cannot be changed to ASCII format.*

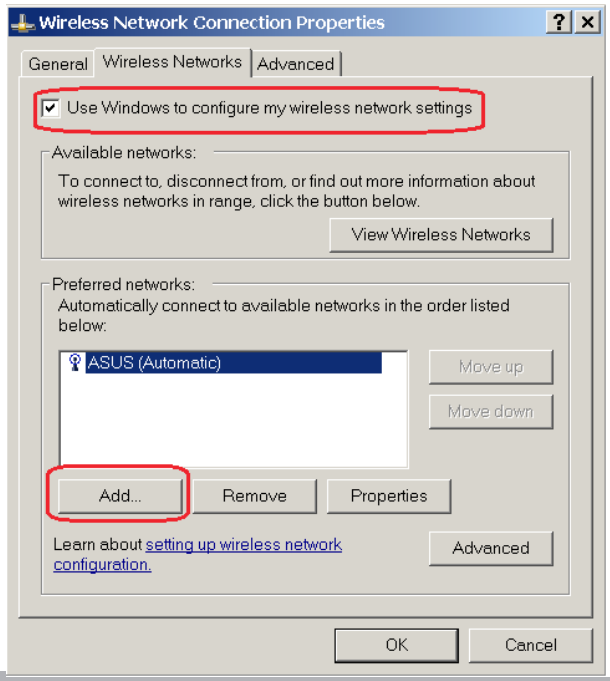
Ad-hoc Connection

To configure your wireless connection in Ad-hoc mode,

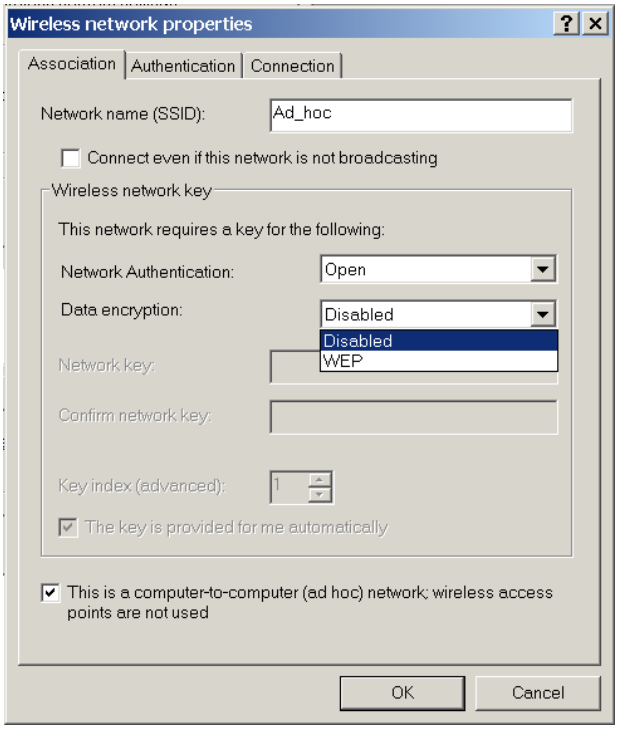
1. Configure a fixed IP for the network camera.
2. Configure wireless connection for the camera in the “Infrastructure” mode as previously described.
3. Return to the Wireless setting page, and change the Wireless mode into “Ad-hoc”. Select the encryption mode and a Wireless mode channel.
4. Configure the PC or laptop that is equipped with a wireless adaptor in the following way:
   4-1. Enter your Windows Control Panel -> Network and Internet Connections -> Network Connections.
   4-2. Select a Wireless Network Connection and right-click on it to select the Properties command.



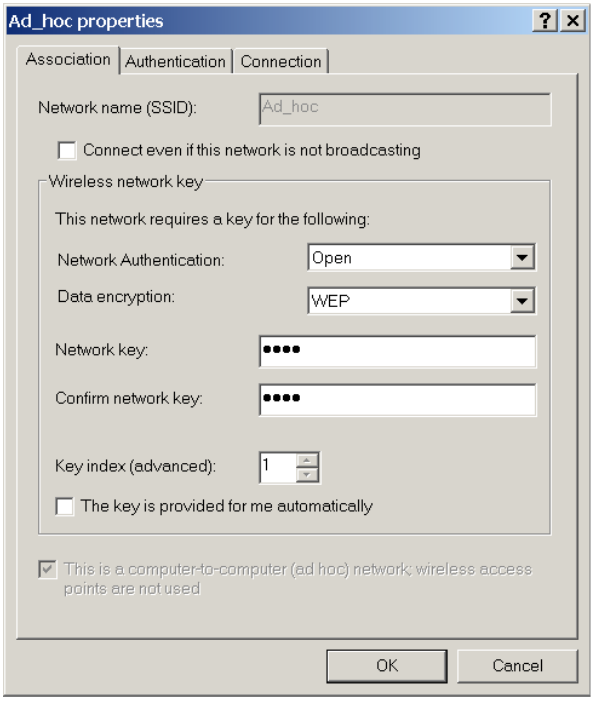
4-3. Select "Wireless Networks" from the tabbed menu on the top.



4-4. Select the first checkbox: "Use Windows to configure my wireless network settings."
4-5. Click Add to create a new wireless connection.
4-6. On the Properties window, enter a name for the network and configure the Data encryption option.

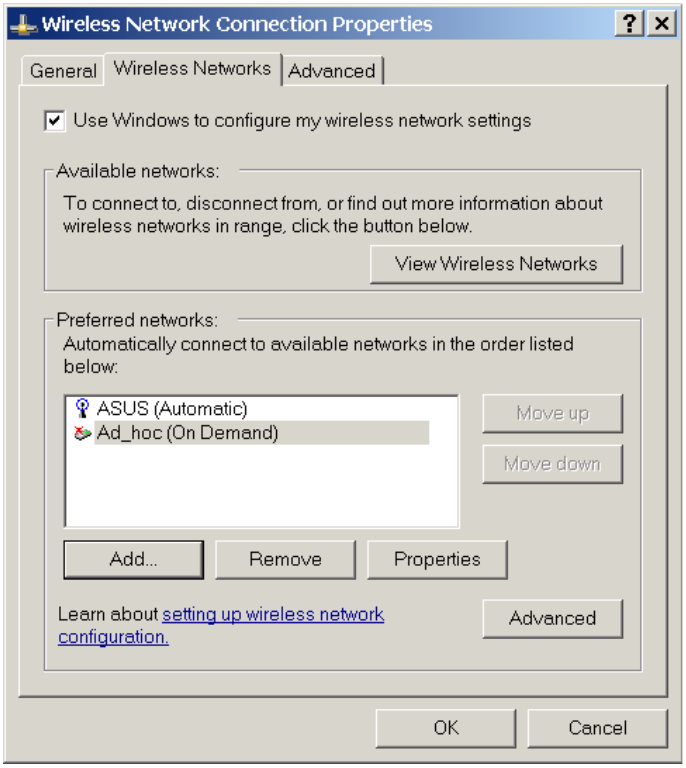


4-7. Click to select the ad hoc checkbox at the bottom of this window. You may also configure a WEP network key for secure connection.

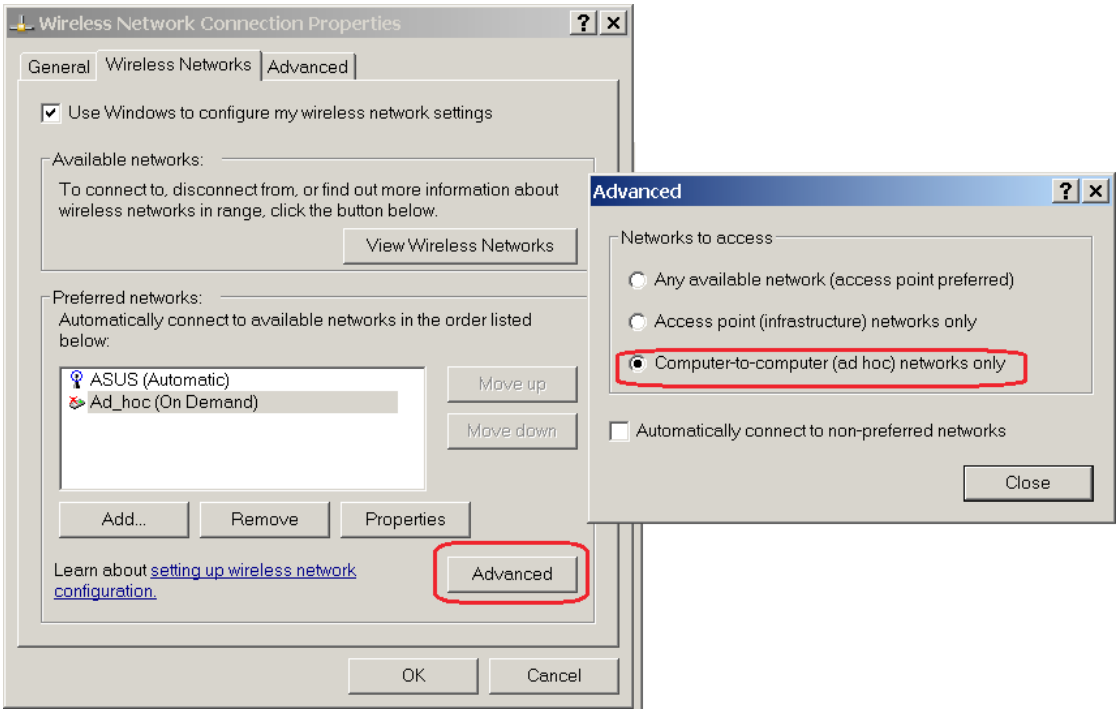


4-8. Click OK when the setting is done. You will return to the Properties window.

4-9. Click on the Advanced button.

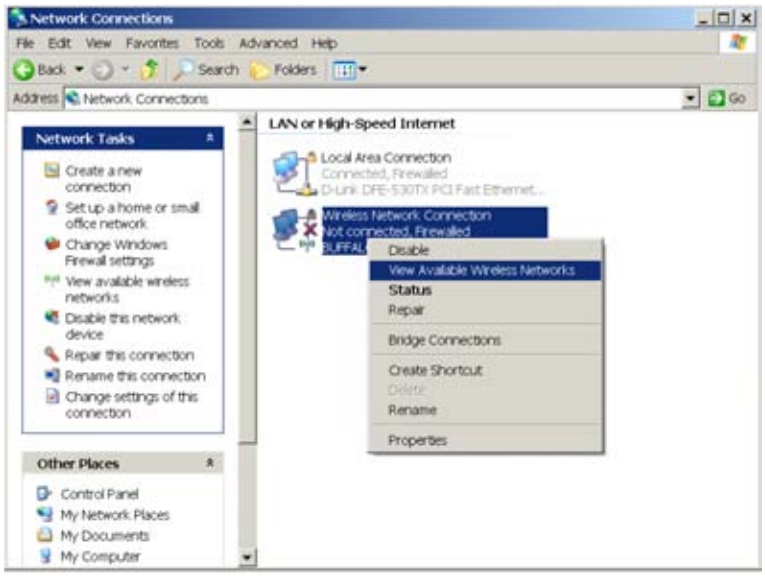


4-10. Select the “Computer-to-computer (ad hoc) networks only” checkbox.

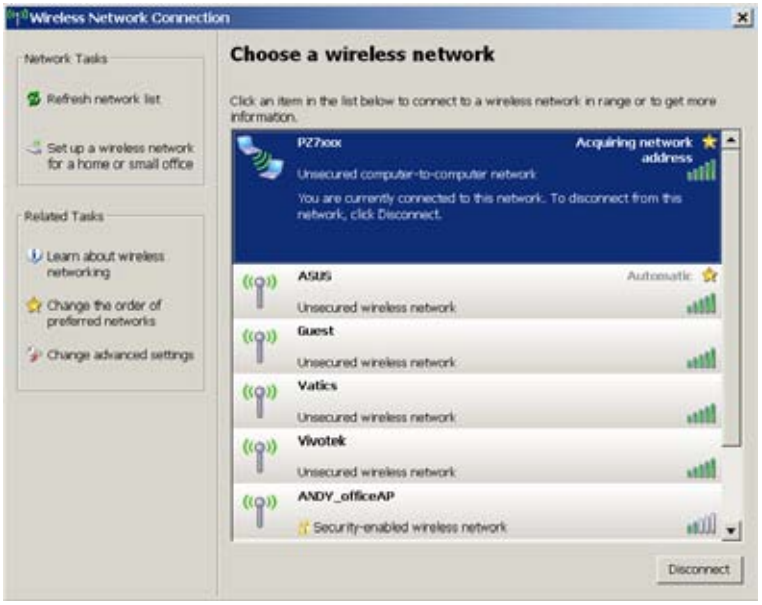


5. Return to the Wireless page and click on the Next button to proceed. Depending on the connection quality of your wireless network, the apply process may take several minutes, and the connection should be available.

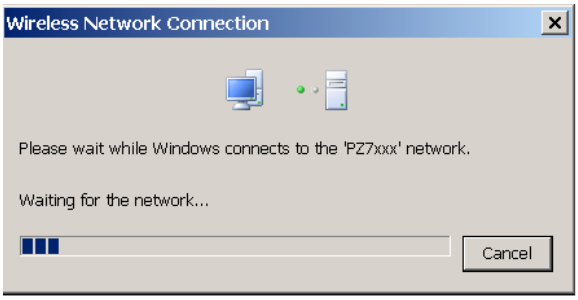
6. Return to the Windows Network Connections page, right-click on the Wirelss Network Connection icon and select the “View Available Wireless Networks” command.



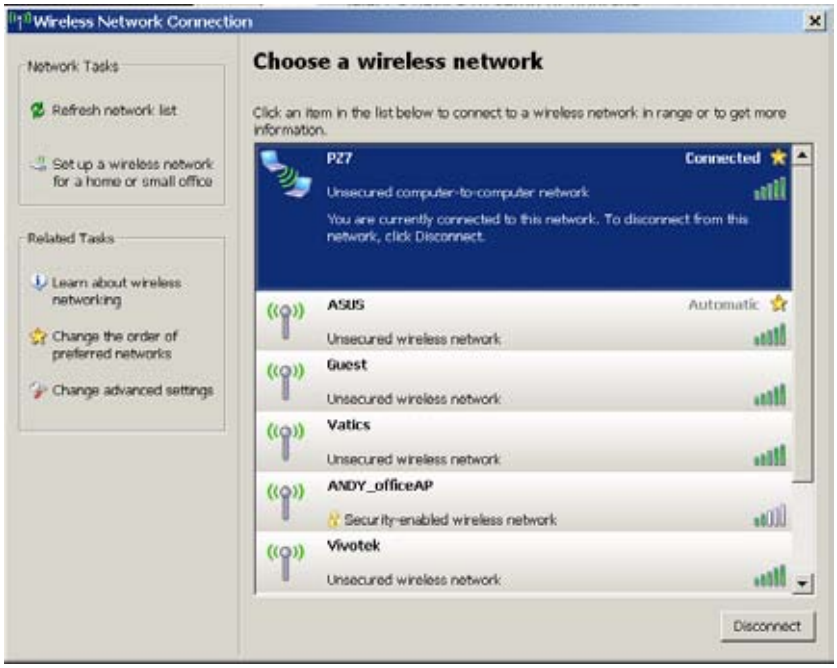
7. Your wireless camera’s SSID should appear on the list of Wireless Networks. Left-click to select and click on the Connect button at the lower right to proceed.



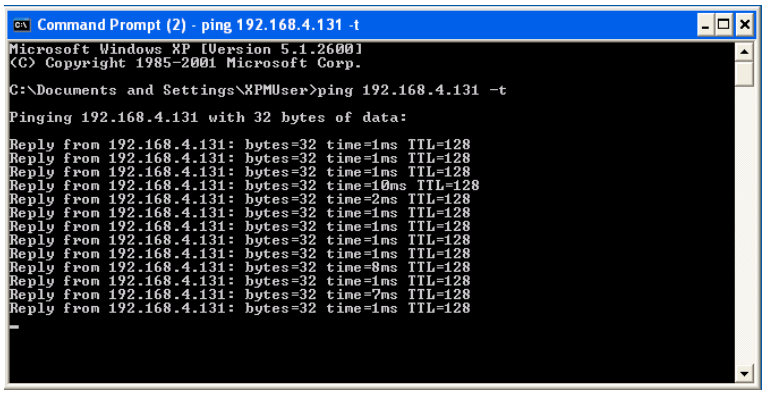
8. Windows will start connecting to your network camera.



9. Wait for the connection to be established. The process can take several minutes. When done, the connection status should be stated as Connected.



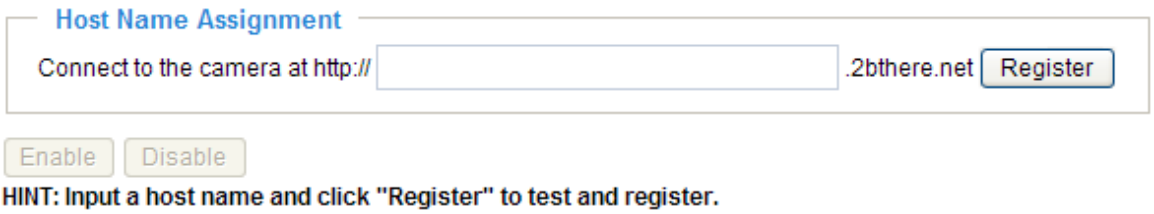
10. Open a command prompt window. Ping the camera's IP to ensure the connection is up and running.



Express Link

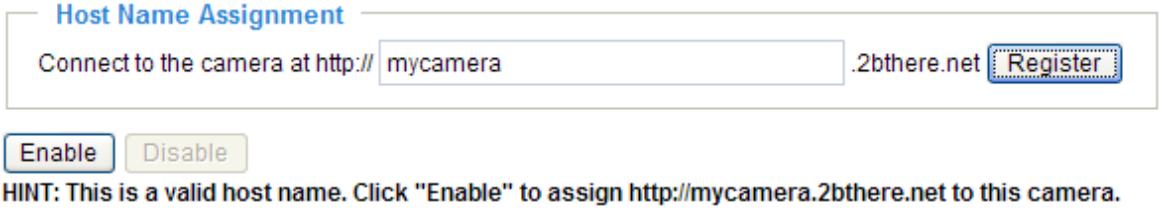
Express Link is a free service provided by VIVOTEK server, which allows users to register a domain name for a network device. One URL can only be mapped to one MAC address. This service will check out if the host name is valid and automatically open a port on your router. Unlike DDNS, the user has to manually check out UPnP port forwarding, Express Link is more convenient and easy to set up.

Host Name Assignment

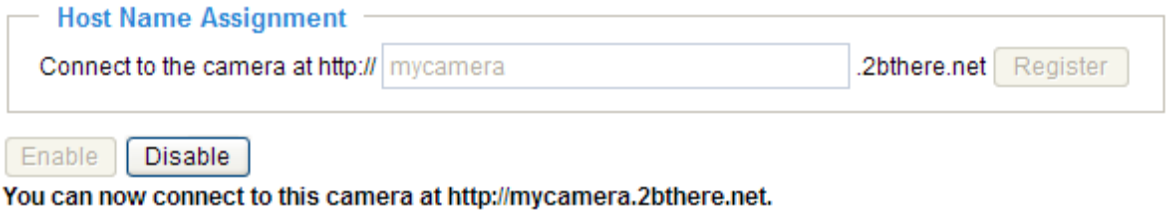


Please follow the steps below to enable Express Link:

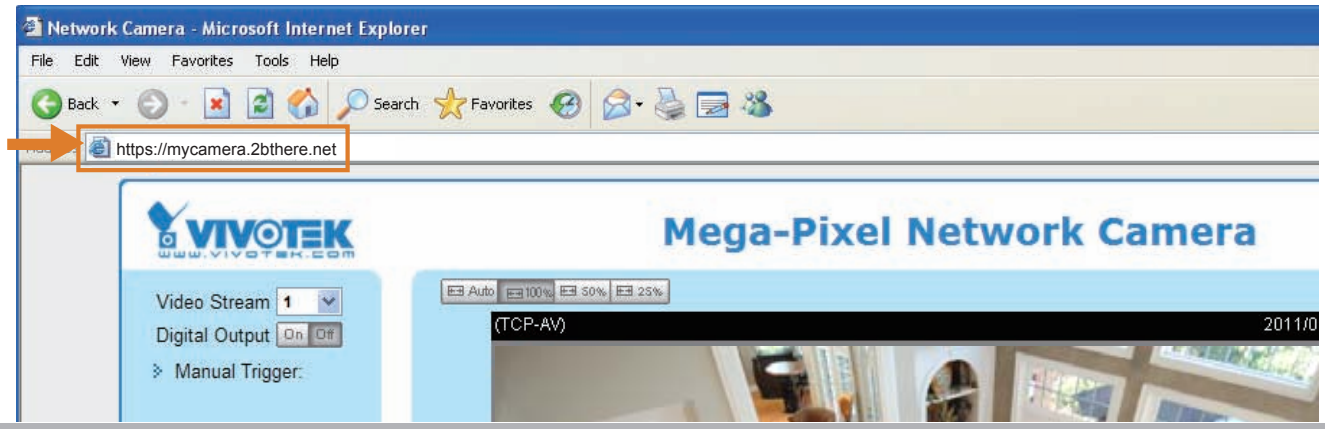
1. Make sure that your router supports UPnP port forwarding and it is activated, or you may see the following warning message: Express Link is not supported under this network environment.
2. Enter a host name for the network device and click **Register**. If the host name has been used by another device, a warning message will show up. If the host name is valid, it will show a message as shown below.



3. Click **Enable** to activate the URL.



HINT: If you click "Disable" to suspend Express Link, you will not be able to access this camera at http://mycamera.2bthere.net.



DDNS

This section explains how to configure the dynamic domain name service for the Network Camera. DDNS is a service that allows your Network Camera, especially when assigned with a dynamic IP address, to have a fixed host and domain name.

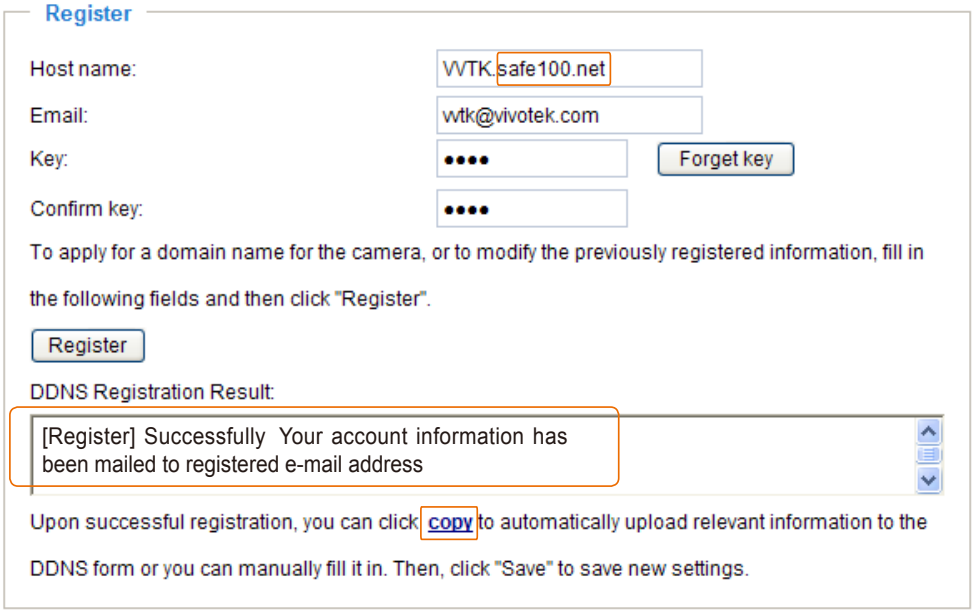
DDNS: Dynamic domain name service

Enable DDNS: Select this option to enable the DDNS setting.

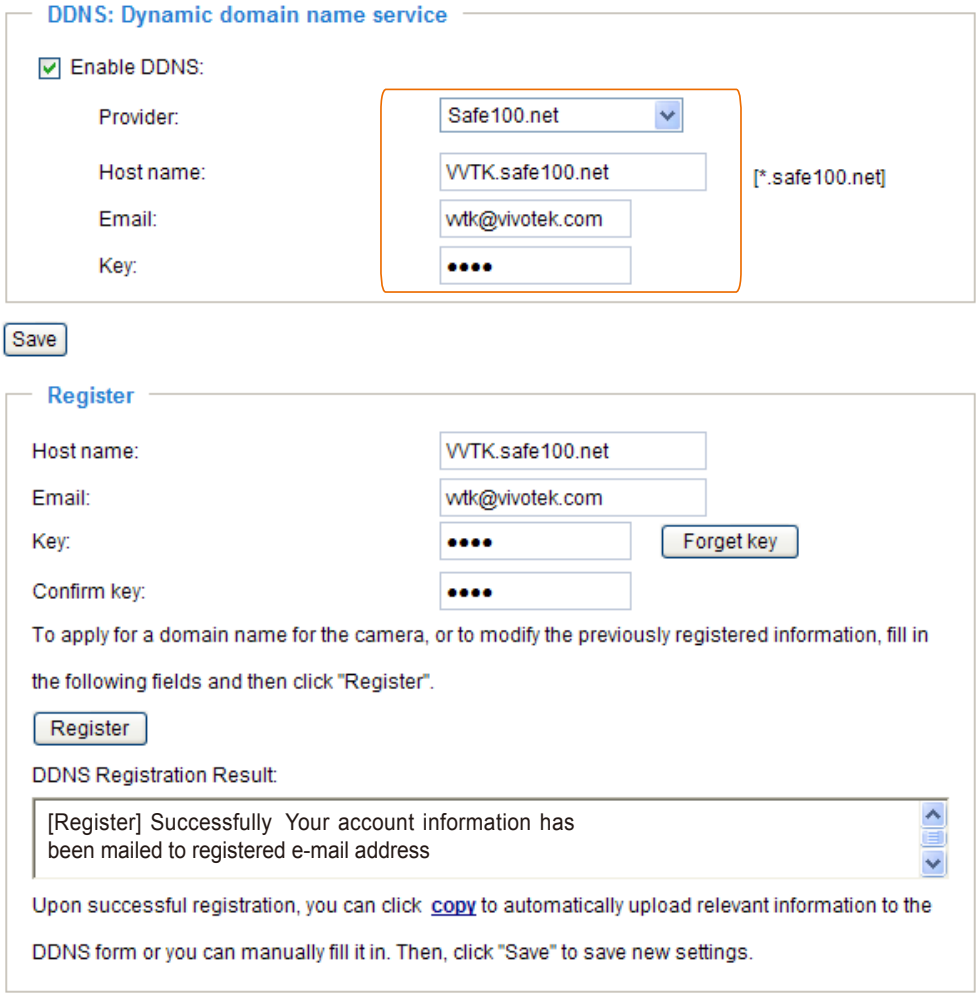
Provider: Select a DDNS provider from the provider drop-down list.
VIVOTEK offers **Safe100.net**, a free dynamic domain name service, to VIVOTEK customers. It is recommended that you register **Safe100.net** to access VIVOTEK's Network Cameras from the Internet. Additionally, we offer other DDNS providers, such as Dyndns.org(Dynamic), Dyndns.org(Custom), TZO.com, DHS.org, CustomSafe100, dyn-interfree.it.
Note that before utilizing this function, please apply for a dynamic domain account first.

■ Safe100.net

1. In the DDNS column, select **Safe100.net** from the drop-down list. Click **I accept** after reviewing the terms of the Service Agreement.
2. In the Register column, fill in the Host name (xxxx.safe100.net), Email, Key, and Confirm Key, and click **Register**. After a host name has been successfully created, a success message will be displayed in the DDNS Registration Result column.



3. Click **Copy** and all the registered information will automatically be uploaded to the corresponding fields in the DDNS column at the top of the page as seen in the picture.



4. Select Enable DDNS and click **Save** to enable the setting.

■ CustomSafe100

VIVOTEK offers documents to establish a CustomSafe100 DDNS server for distributors and system integrators. You can use CustomSafe100 to register a dynamic domain name if your distributor or system integrators offer such services.

1. In the DDNS column, select CustomSafe100 from the drop-down list.
2. In the Register column, fill in the Host name, Email, Key, and Confirm Key; then click **Register**. After a host name has been successfully created, you will see a success message in the DDNS Registration Result column.
3. Click **Copy** and all for the registered information will be uploaded to the corresponding fields in the DDNS column.
4. Select Enable DDNS and click **Save** to enable the setting.

Forget key: Click this button if you have forgotten the key to Safe100.net or CustomSafe100. Your account information will be sent to your email address.

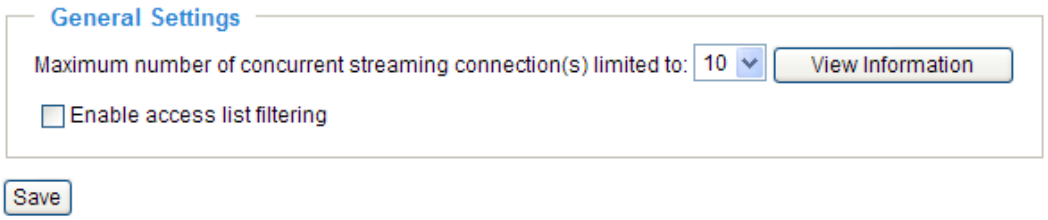
Refer to the following links to apply for a dynamic domain account when selecting other DDNS providers:

■ Dyndns.org(Dynamic) / Dyndns.org(Custom): visit http://www.dyndns.com/
■ TZO.com: visit http://www.tzo.com/
■ DHS.org: visit http://www.dhs.org/
■ dyn-interfree.it: visit http://dyn-interfree.it/

Access List Advanced Mode

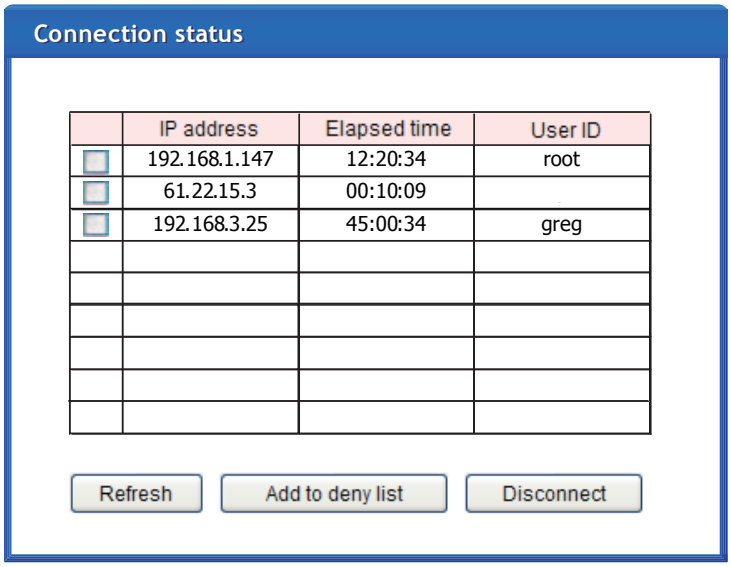
This section explains how to control access permission by verifying the client PC's IP address.

General Settings



Maximum number of concurrent streaming connection(s) limited to: Simultaneous live viewing for 1~10 clients (including stream #1 ~ stream #3). The default value is 10. If you modify the value and click **Save**, all current connections will be disconnected and automatically attempt to re-link (IE Explore or Quick Time Player).

View Information: Click this button to display the connection status window showing a list of the current connections.
For example:



■ IP address: Current connections to the Network Camera.

■ Elapsed time: How much time the client has been at the webpage.

■ User ID: If the administrator has set a password for the webpage, the clients have to enter a user name and password to access the live video. The user name will be displayed in the User ID column. If the administrator allows clients to link to the webpage without a user name and password, the User ID column will be empty.

There are some situations which allow clients access to the live video without a user name and password:

1. The administrator does not set up a root password. For more information about how to set up a root password and manage user accounts, please refer to Security on page 28.
2. The administrator has set up a root password, but set **RTSP Authentication** to "disable". For more information about **RTSP Authentication**, please refer to RTSP Streaming on page 47.
3. The administrator has set up a root password, but allows anonymous viewing. For more information about **Allow Anonymous Viewing,** please refer to Security on page 28.

■ Refresh: Click this button to refresh all current connections.

■ Add to deny list: You can select entries from the Connection Status list and add them to the Deny List to deny access. Please note that those checked connections will only be disconnected temporarily and will automatically try to re-link again (IE Explore or Quick Time Player). If you want to enable the denied list, please check **Enable access list filtering** and click **Save** in the first column.

■ Disconnect: If you want to break off the current connections, please select them and click this button. Please note that those checked connections will only be disconnected temporarily and will automatically try to re-link again (IE Explore or Quick Time Player).

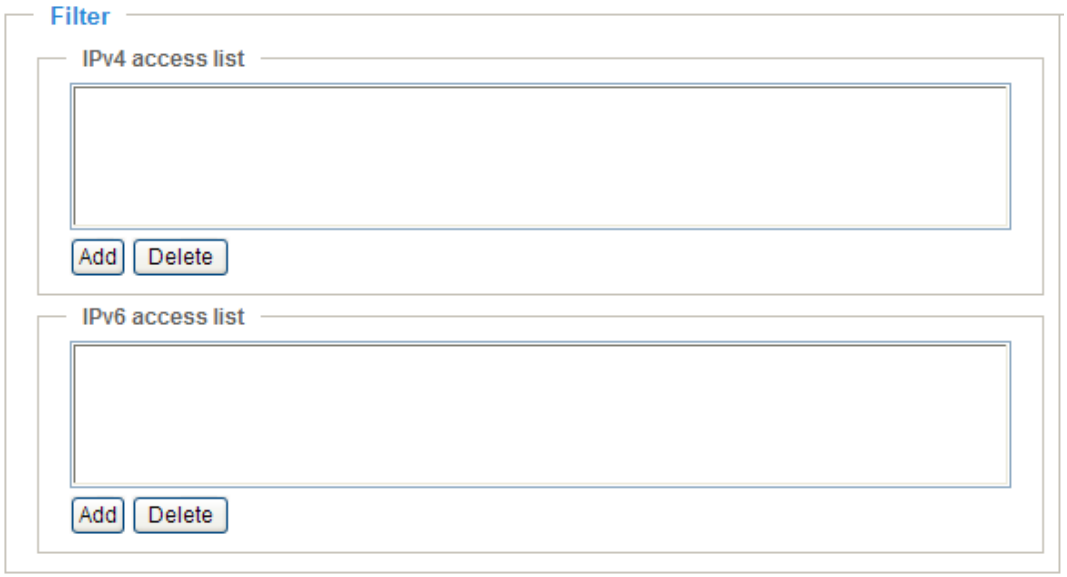
Enable access list filtering: Check this item and click **Save** if you want to enable the access list filtering function.

Filter Type

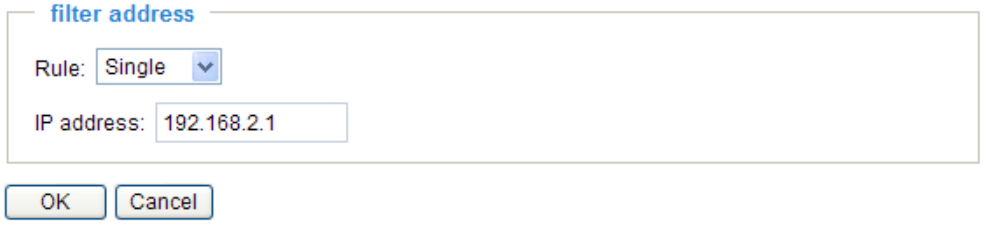
Select **Allow** or **Deny** as the filter type. If you choose **Allow Type**, only those clients whose IP addresses are on the Access List below can access the Network Camera, and the others cannot access. On the contrary, if you choose **Deny Type**, those clients whose IP addresses are on the Access List below will not be allowed to access the Network Camera, and the others can access.

Filter

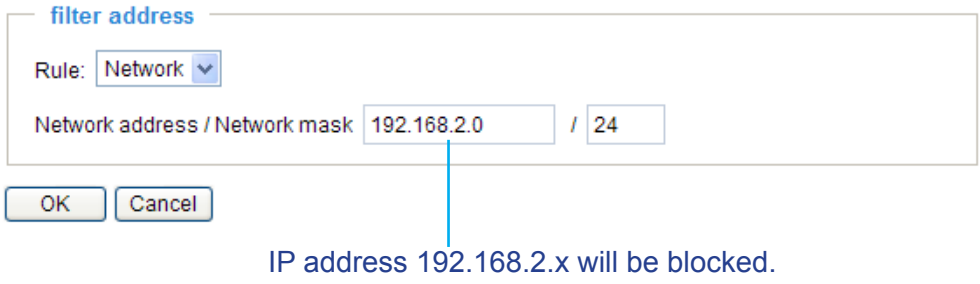
Then you can add a rule to the following Access List. Please note that the IPv6 access list column will not be displayed unless you enable IPv6 on the Network page. For more information about **IPv6 Settings**, please refer to page 39 for detailed information.



There are three types of rules:
Single: This rule allows the user to add an IP address to the Allowed/Denied list.
For example:



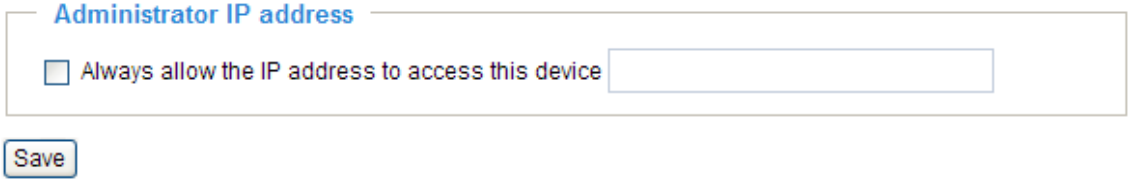
Network: This rule allows the user to assign a network address and corresponding subnet mask to the Allow/Deny List. The network mask is written in the CIDR format.
For example:



Range: This rule allows the user to assign a range of IP addresses to the Allow/Deny List.
Note: This rule is only applied to IPv4.
For example:

Administrator IP address

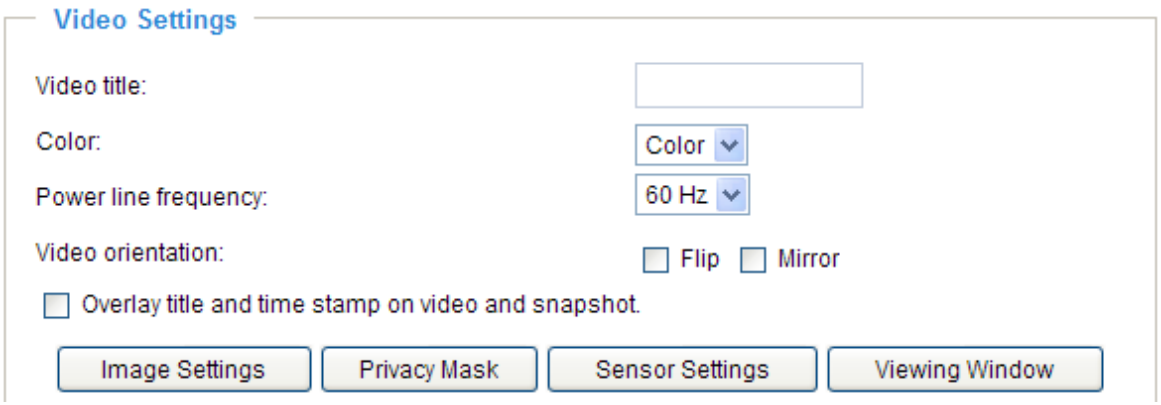
Always allow the IP address to access this device: You can check this item and add the Administrator's IP address in this field to make sure the Administrator can always connect to the device.



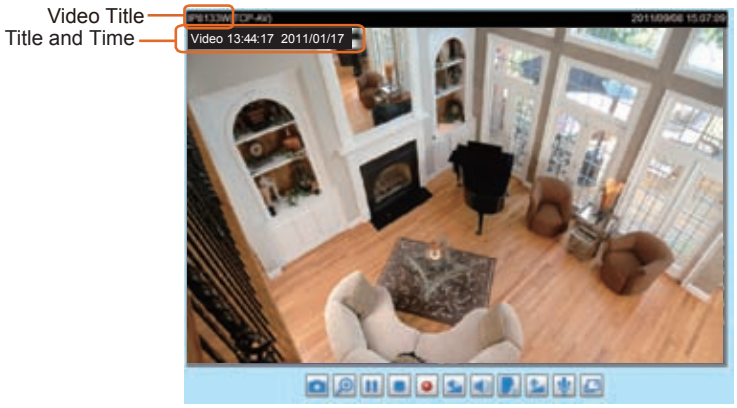
Audio and Video

This section explains how to configure the Audio and Video settings of the Network Camera.

Video Settings



Video title: Enter a name that will be displayed on the title bar of the live video.



Color: Select to display color or black/white video streams.

Power line frequency: Set the power line frequency consistent with local utility settings to eliminate image flickering associated with fluorescent lights. Note that after the power line frequency is changed, you must disconnect and reconnect the power cord of the Network Camera in order for the new setting to take effect.

Video orientation: Flip--vertically reflect the display of the live video; Mirror--horizontally reflect the display of the live video. Select both options if the Network Camera is installed upside-down (ex. on the ceiling) to correct the image orientation. Please note that the preset locations will be cleared after flip/mirror.

Overlay title and time stamp on video and snapshot: Select this option to place the video title and time on the video streams and snapshot.
Note that when the frame size is set to 176 x 144 as shown in the picture below, only the time will be stamped on the video streams.

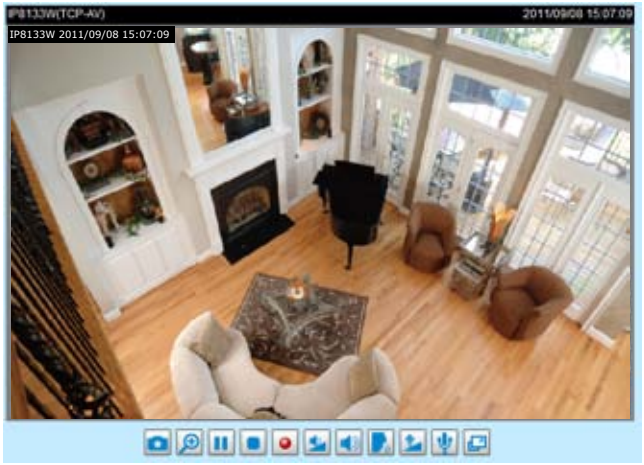
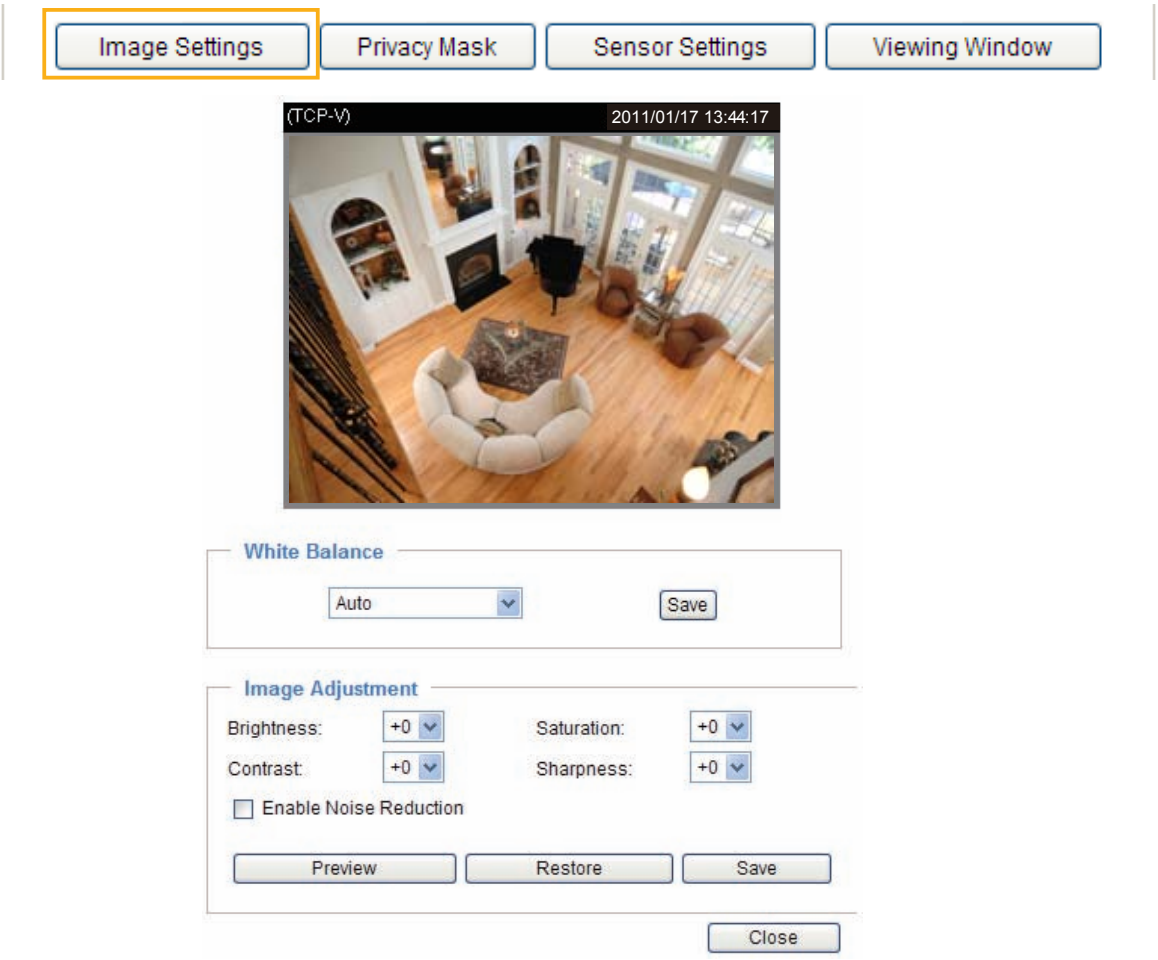


Image Settings Advanced Mode

Click **Image Settings** to open the Image Settings page. On this page, you can tune the White balance, Brightness, Saturation, Contrast, Sharpness, and Noice Reduction settings for the video.



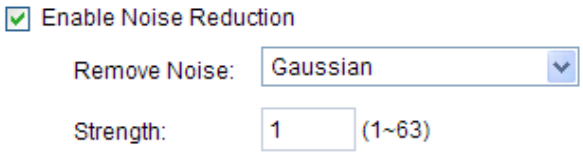
White balance: Adjust the value for the best color temperature.
■ Auto
The Network Camera automatically adjusts the color temperature of the light in response to different light sources. The white balance setting defaults to **Auto** and works well in most situations.

■ Keep current value
Follow the steps below to manually set the white balance to compensate for the ambient lighting conditions.
1. Set the White balance to **Auto** and click **Save**.
2. Place a sheet of white paper in front of the lens, then allow the Network Camera to adjust the color temperature automatically.
3. Select Keep Current Value to confirm the setting while the white balance is being measured.
4. Click **Save** to enable the new setting.

Image Adjustment

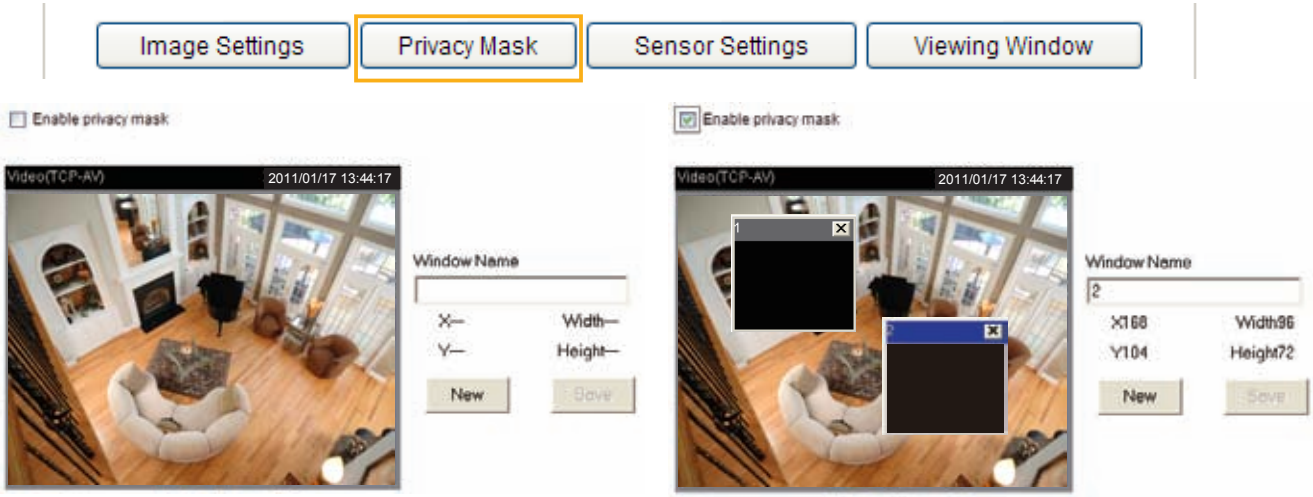
■ Brightness: Adjust the image brightness level, which ranges from -5 to +5.
■ Saturation: Adjust the image saturation level, which ranges from -5 to +5.
■ Contrast: Adjust the image contrast level, which ranges from -5 to +5.
■ Sharpness: Adjust the image sharpness level, which ranges from -3 to +3.

Enable Noise Reduction
Noise reduction is the process of removing noise from a signal. Select reduction for the Gaussian (video amplifier thermal noises often occur in the the dark area of an image) or Impulse (audio clicks and pops due to electromagnetic interference). Select the type of noise to remove or select Both Faussian and Impulse and enter a value from 1 to 63 to set the degree of enhancement required.



You can click **Preview** to view the expected results, or click **Restore** to recall the original settings without incorporating the changes. When completed with the settings on this page, click **Save** to enable the setting and click **Close** to exit the page.

Privacy Mask Advanced Mode
Click **Privacy Mask** to open the settings page. On this page, you can block out sensitive zones to address privacy concerns.



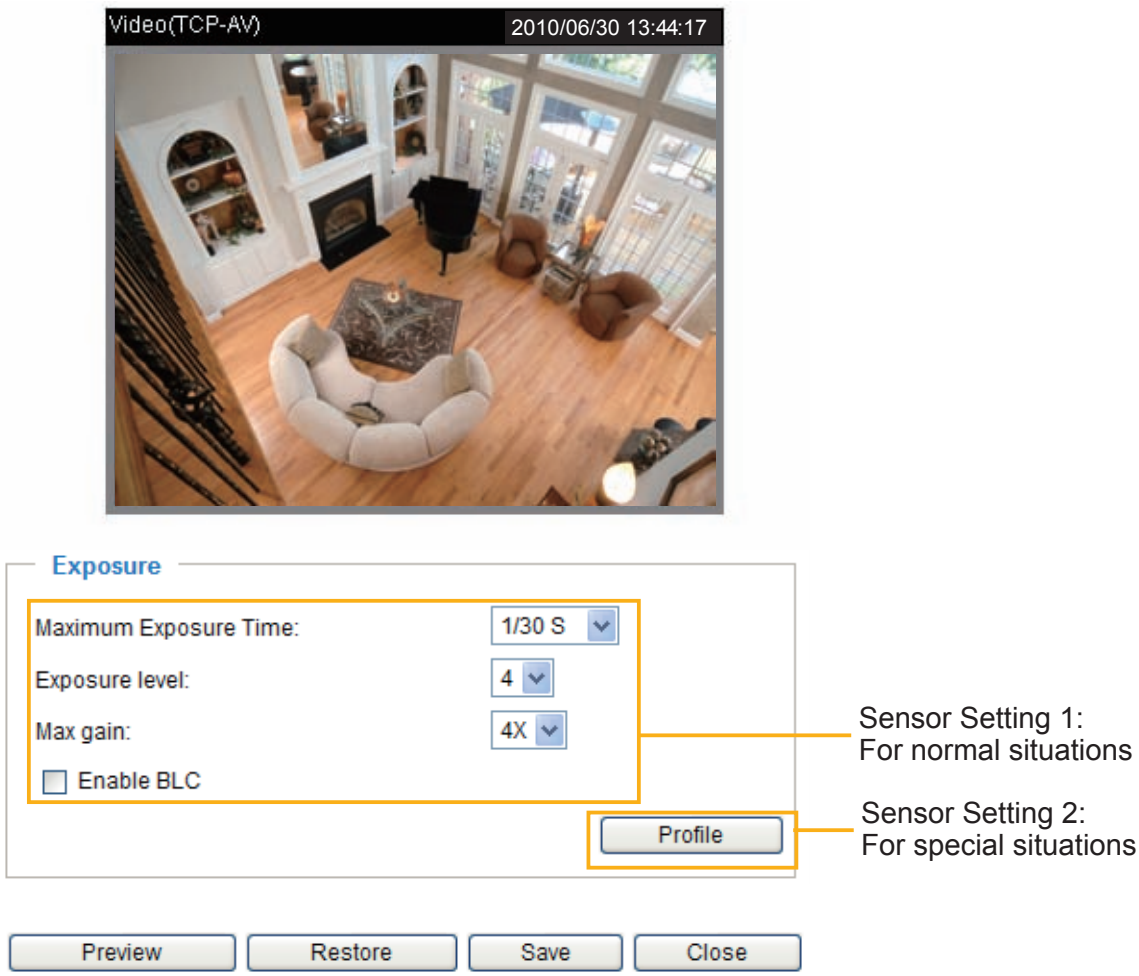
■ To set the privacy mask windows, follow the steps below:
1. Click **New** to add a new window.
2. Use the mouse to size and drag-drop the window, which is recommended to be at least twice the size of the object (height and width) you want to cover.
3. Enter a Window Name and click **Save** to enable the setting.
4. Select **Enable privacy mask** to enable this function.

NOTE:

► *Up to 5 privacy mask windows can be configured on the same screen.*
► *If you want to delete the privacy mask window, please click the 'x' on the upper right corner of the window.*

Sensor Settings Advanced Mode

Click **Sensor Settings** to open the Sensor Settings page. On this page, you can set the maximum exposure time, exposure level, and AGC (Auto Gain Control) settings.
You can configure two sets of sensor settings: one for normal situations, the other for special situations (schedule mode - for a different period of time with different lighting conditions).



Exposure

■ Maximum Exposure Time: Select a proper maximum exposure time according to the light source of the surroundings. Shorter exposure times result in less light. The exposure times are selectable for the following durations: 1/30 second and 1/15 second.

■ Exposure level: You can manually set the Exposure level, which ranges from 1 to 8 (dark to bright).The default value is 4.

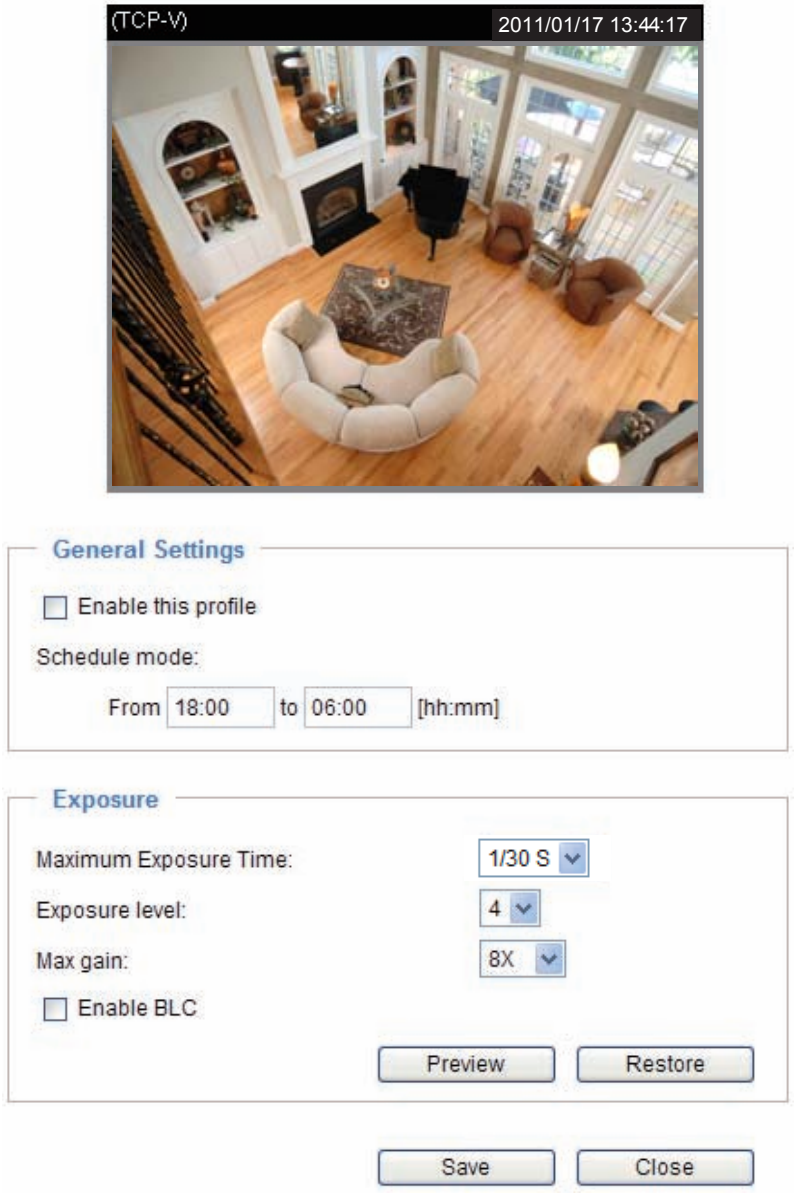
■ Max gain (Auto Gain Control): You can manually set the AGC level (2X 4X, 8X, or 16X). The default value is 4X.

■ Enable BLC (Back Light Compensation): Enable this option when the object is too dark or too bright to recognize. It allows the camera to adjust to the best light conditions in any environment and

automatically provide the necessary light compensation.

You can click **Preview** for a glimpse of expected results, or click **Restore** to recall the original settings without incorporating the changes. When completed with the settings on this page, click **Save** to enable the settings and click **Close** to exit the page.

If you want to configure another sensor setting for a scheduled mode, please click **Profile** to open the Sensor Settings Profile Settings page as shown below.

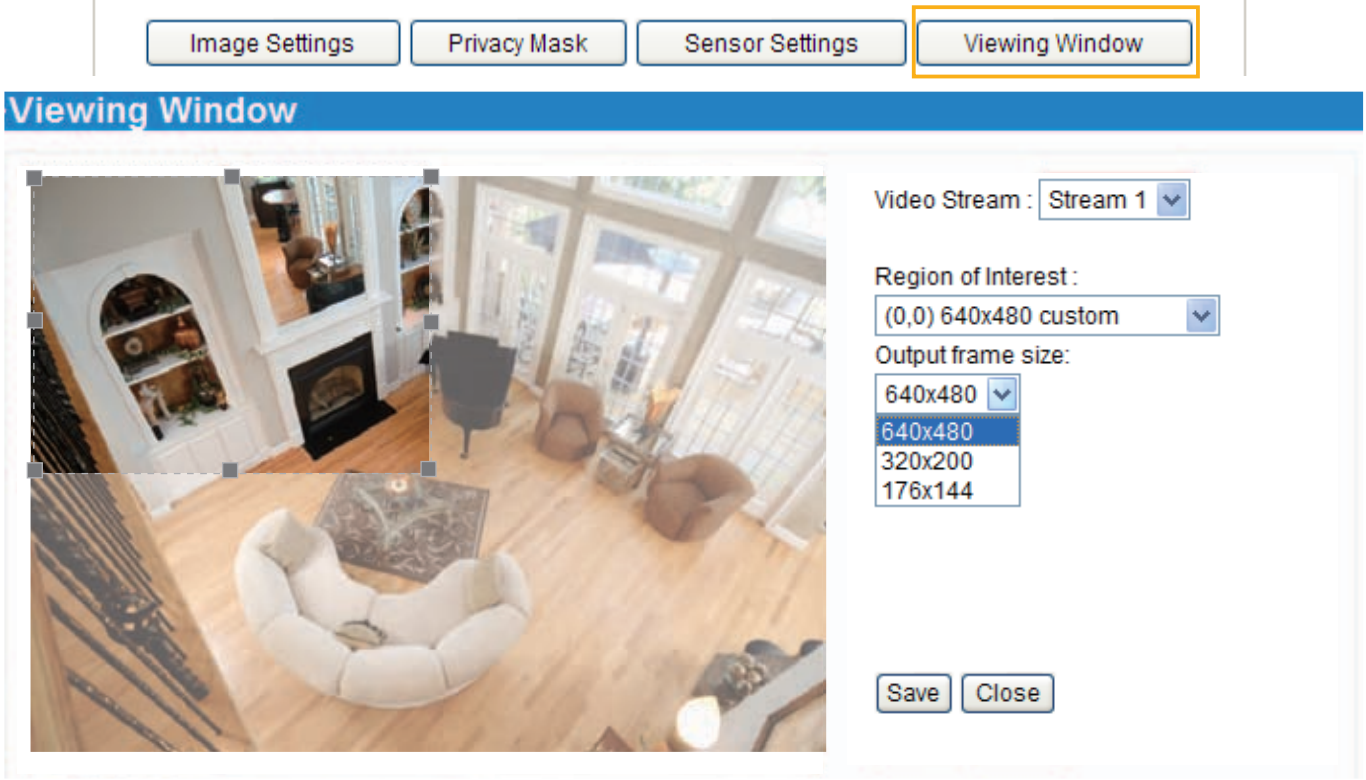


Please follow the steps below to setup a profile:
1. Check **Enable this profile**.
2. Enter a range of time for the Schedule mode.
3. Configure Exposure settings in the second column. Please refer to the previous page for detailed information.
4. Click **Save** to enable the setting and click **Close** to exit the page.

Viewing Window Advanced Mode

Click **Viewing Window** to open the viewing region settings page. On this page, you can set the **Region of Interest** and the **Output Frame Size** for stream 1.

Users can define the "Region of Interest" (viewing region) and the "Output Frame Rate" (size of the live view window) ranging from 176 x 144 to 1280 x 800.



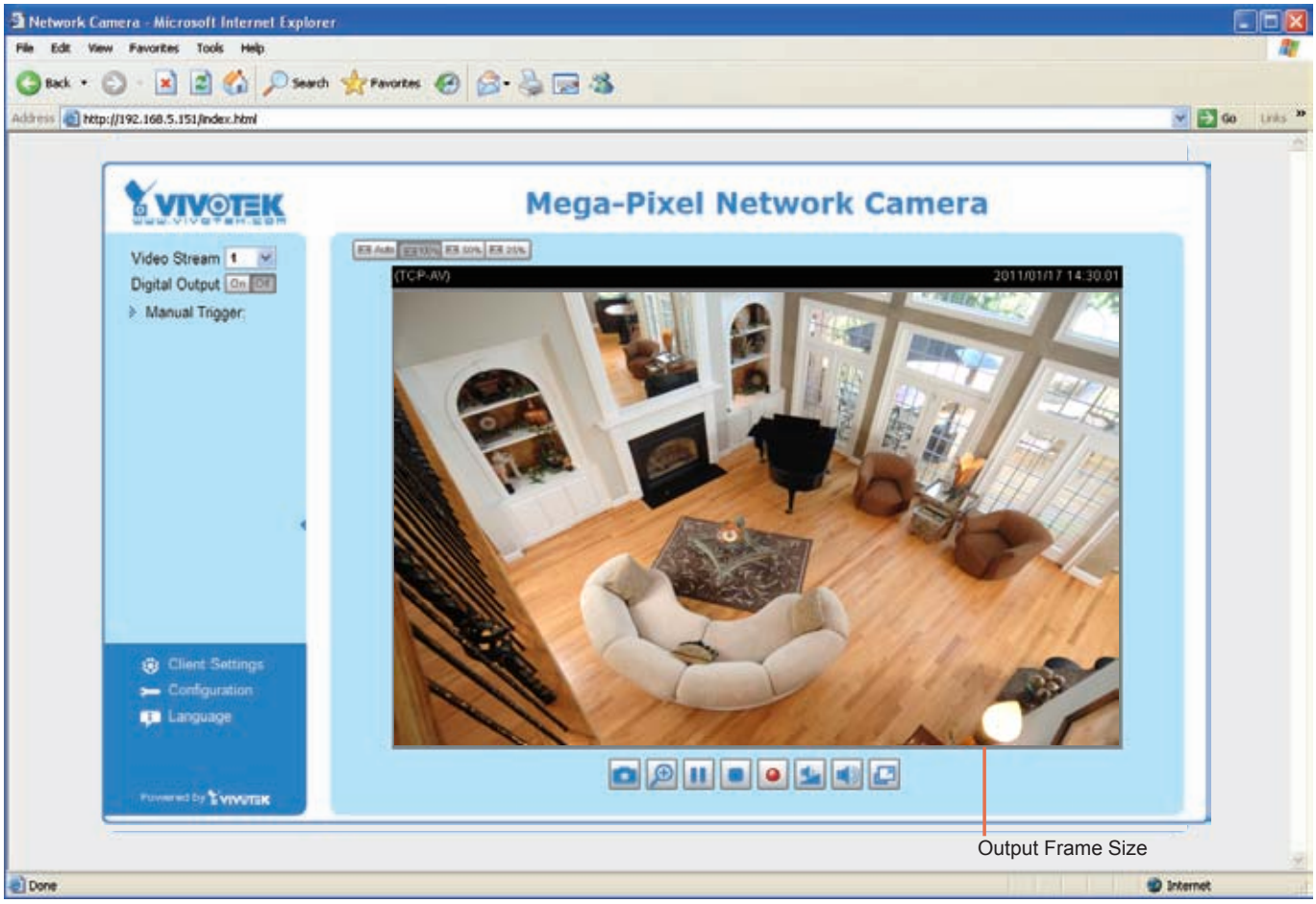
Please follow the steps below to set up those settings for a stream:

1. Select a stream which you want to set up the viewing region.
2. Select a **Region of Interest** from the drop-down list, the floating frame will resize accordingly. If you want to set up a customized viewing region, you can also resize and drag the floating frame to a desired position with your mouse.
3. Choose a proper **Output Frame Size** from the drop-down list according to the size of your monitoring device.

NOTE:

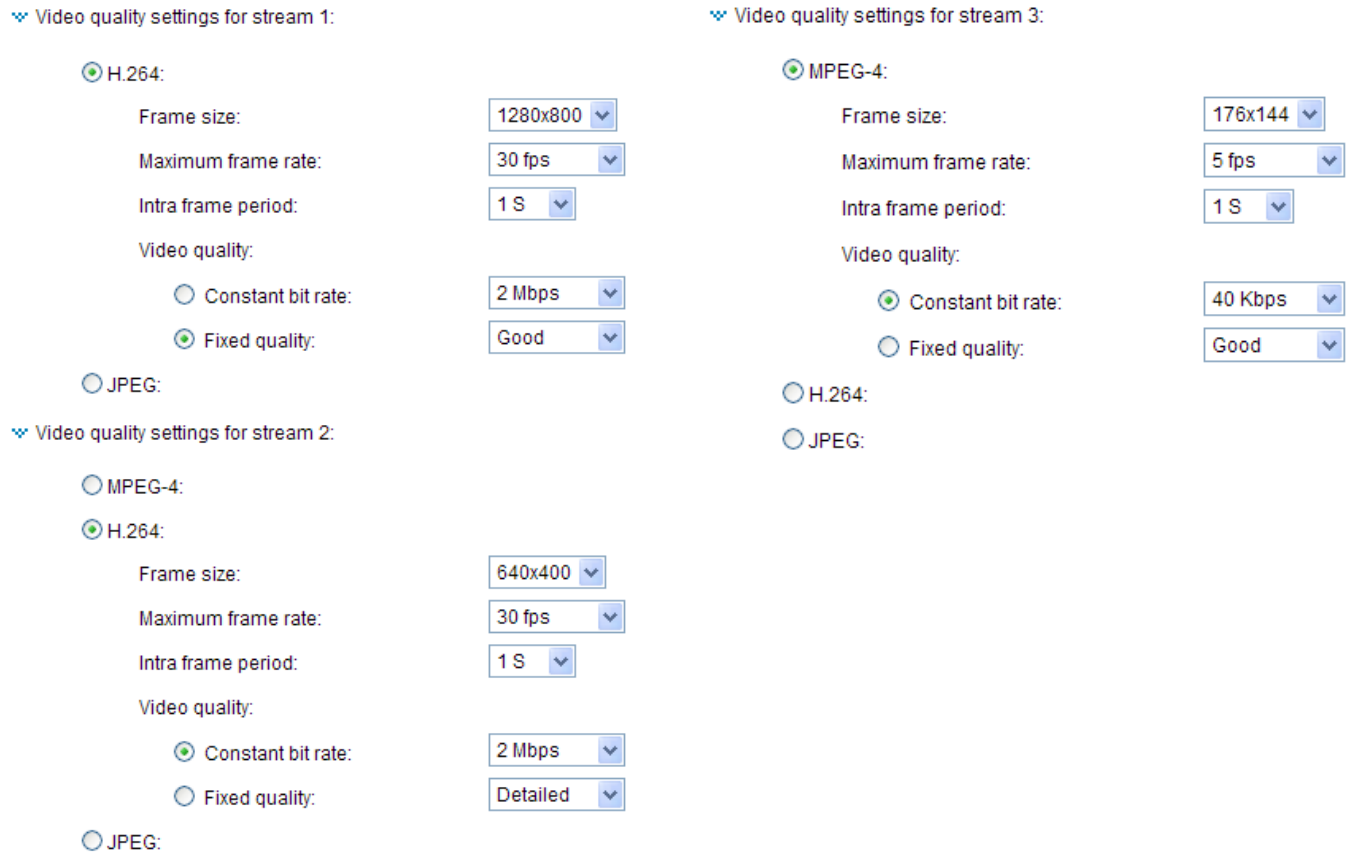
► *All the items in the "Region of Interest" should not be greater than the "Output Frame Size" (current maximum resolution).*

When completed with the settings in the Viewing Window, click **Save** to enable the settings and click **Close** to exit the window. The selected **Output Frame Size** will immediately be applied to the **Frame size** of video stream. Then you can go back to the home page to test the settings.

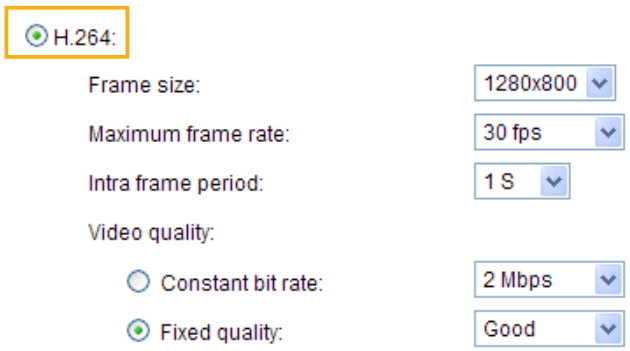


Video Quality Settings Advanced Mode

Click the stream item to display the detailed information. This Network Camera offers real-time H.264, MPEG-4 and MJEPG compression standards (Triple Codec) and multiple streams for real-time viewing.



If **H.264 / MPEG-4** mode is selected, the video is streamed via RTSP protocol. There are four parameters for you to adjust the video performance:



■ Frame size

You can set up different video resolution for different viewing devices. For example, set a smaller frame size and lower bit rate for remote viewing on mobile phones and a larger video size and a higher bit rate for live viewing on web browsers. Note that a larger frame size takes up more bandwidth.

■ Maximum frame rate

This limits the maximum refresh frame rate per second. Set the frame rate higher for smoothlier video quality.

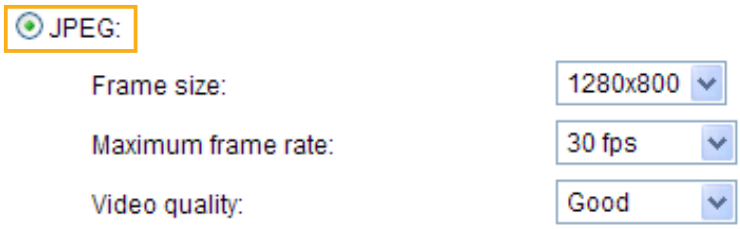
If the power line frequency is set to 50Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, and 25fps. If the power line frequency is set to 60Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, 25fps, and 30fps. You can also select **Customize** and manually enter a value. The frame rate will decrease if you select a higher resolution.

■ Intra frame period
Determine how often to plant an I frame. The shorter the duration, the more likely you will get better video quality, but at the cost of higher network bandwidth consumption. Select the intra frame period from the following durations: 1/4 second, 1/2 second, 1 second, 2 seconds, 3 seconds, and 4 seconds.

■ Video quality
A complex scene generally produces a larger file size, meaning that higher bandwidth will be needed for data transmission. Therefore, if **Constant bit rate** is selected, the bandwidth utilization is fixed at a selected level, resulting in mutable video quality performance. The bit rates are selectable at the following rates: 20Kbps, 30Kbps, 40Kbps, 50Kbps, 64Kbps, 128Kbps, 256Kbps, 512Kbps, 768Kbps, 1Mbps, 1.5Mbps, 2Mbps, 3Mbps, 4Mbps, 6Mbps, and 8Mbps. You can also select **Customize** and manually enter a value.

On the other hand, if **Fixed quality** is selected, all frames are transmitted with the same quality; bandwidth utilization is therefore unpredictable. The video quality can be adjusted to the following settings: Medium, Standard, Good, Detailed, and Excellent. You can also select **Customize** and drag the slide bar.

If **JPEG** mode is selected, the Network Camera continuously sends JPEG images to the client, producing a moving effect similar to a filmstrip. Every single JPEG image transmitted guarantees the same image quality, which in turn comes at the expense of variable bandwidth usage. Because the media contents are a combination of JPEG images, no audio data is transmitted to the client. There are three parameters provided in MJPEG mode to control the video performance:



■ Frame size
You can set up different video resolution for different viewing devices. For example, set a smaller frame size and lower bit rate for remote viewing on mobile phones and a larger video size and a higher bit rate for live viewing on web browsers. Note that a larger frame size takes up more bandwidth.

■ Maximum frame rate
This limits the maximum refresh frame rate per second. Set the frame rate higher for smoother video quality.
If the power line frequency is set to 50Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, and 25fps. If the power line frequency is set to 60Hz, the frame rates are selectable at 1fps, 2fps, 3fps, 5fps, 8fps, 10fps, 15fps, 20fps, 25fps, and 30fps. You can also select Customize and manually enter a value. The frame rate will decrease if you select a higher resolution.

■ Video quality
The video quality can be adjusted to the following settings: Medium, Standard, Good, Detailed, and Excellent. You can also select **Customize** and manually enter a value.

NOTE:

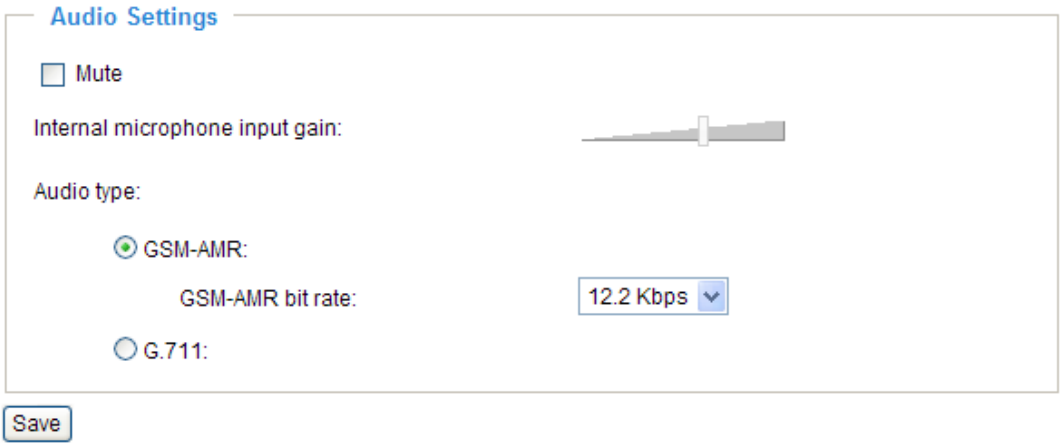
► *Video quality and fixed quality refers to the **compression rate**, so a lower value will produce higher quality.*

► *Converting high-quality video may significantly increase the CPU load, and you may encounter streaming disconnection or video loss while capturing a complicated scene. In the event of occurrence, we suggest you customize a lower video resolution or reduce the frame rate to obtain smooth video.*

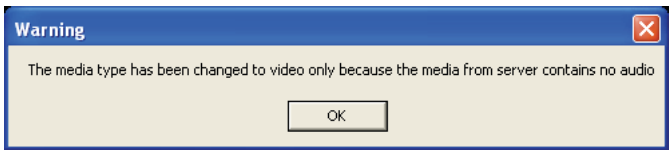
Audio Settings

NOTE:

Only IP8133 and IP8133W support two-way audio (they are equipped with an onboard speaker).



Mute: Select this option to disable audio transmission from the Network Camera to all clients. Note that if mute mode is turned on, no audio data will be transmitted even if audio transmission is enabled on the Client Settings page. In that case, the following message is displayed:



Internal microphone input gain: Manually drag the slide bar to adjust the gain of the internal audio input according to ambient conditions.

Audio type: Select audio codec and the bit rate Advanced Mode.

- GSM-ARM is designed to optimize speech quality and requires less bandwidth. The bit rates are selectable from: 4.75Kbps, 5.15Kbps, 5.90Kbps, 6.7Kbps, 7.4Kbps, 7.95Kbps, 10.2Kbps, and 12.2Kbps.
- G.711 also provides good sound quality and requires about 64Kbps. Select pcmu (μ-Law) or pcma (A-Law) mode.

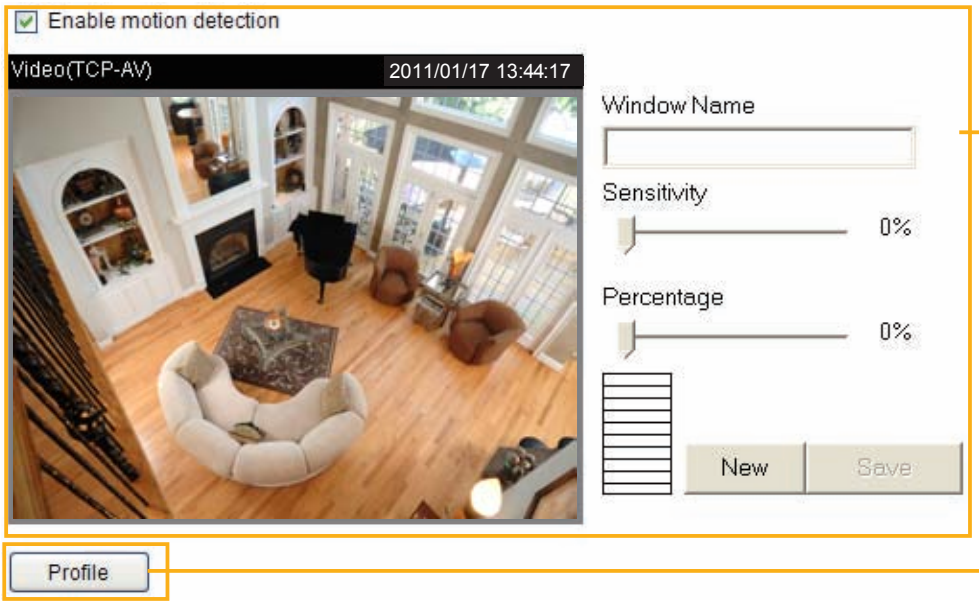
When completed with the settings on this page, click **Save** to enable the settings.

NOTE:

For audio recording and Event related settings (Media Settings), please refer to page 95 for more information.

Motion Detection

This section explains how to configure the Network Camera to enable motion detection. A total of three motion detection windows can be configured.



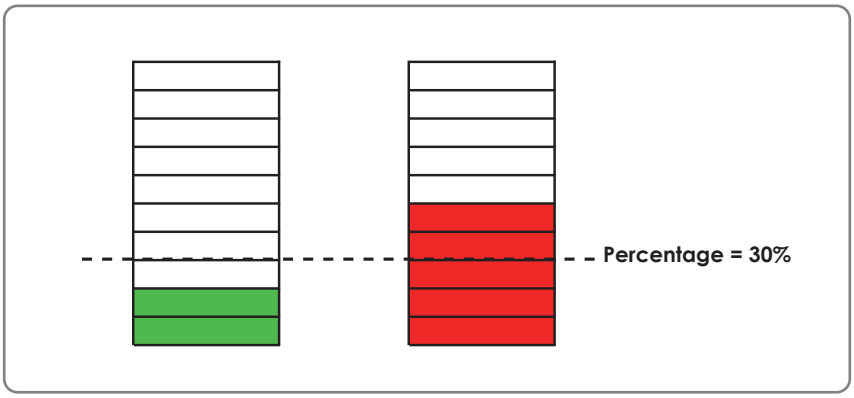
Follow the steps below to enable motion detection:

1. Click **New** to add a new motion detection window.
2. In the Window Name text box, enter a name for the motion detection window.
   - To move and resize the window, drag and drop your mouse on the window.
   - To delete window, click X on the top right corner of the window.
3. Define the sensitivity to moving objects and the space ratio of all alerted pixels by moving the Sensitivity and Percentage slide bar.
4. Click **Save** to enable the settings.
5. Select **Enable motion detection** to enable this function.

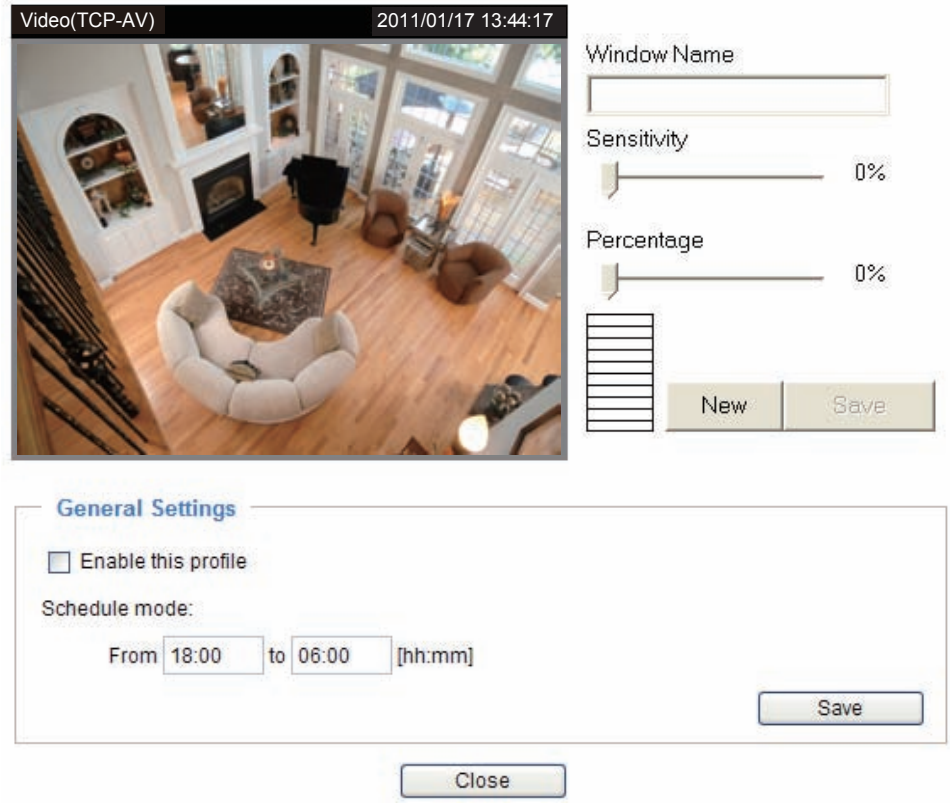
For example:

The Percentage Indicator will rise or fall depending on the variation between sequential images. When motions are detected by the Network Camera and are judged to exceed the defined threshold, the red bar rises. Meanwhile, the motion detection window will be outlined in red. Photos or videos can be captured instantly and configured to be sent to a remote server (Email, FTP) by utilizing this feature as a trigger source. For more information on how to set an event, please refer to Application on page 81.

A green bar indicates that even though motions have been detected, the event has not been triggered because the image variations still fall under the defined threshold.



If you want to configure other motion detection settings for schedule mode, please click **Profile** to open the Motion Detection Profile Settings page as shown below. A total of three motion detection windows can be configured on this page as well.

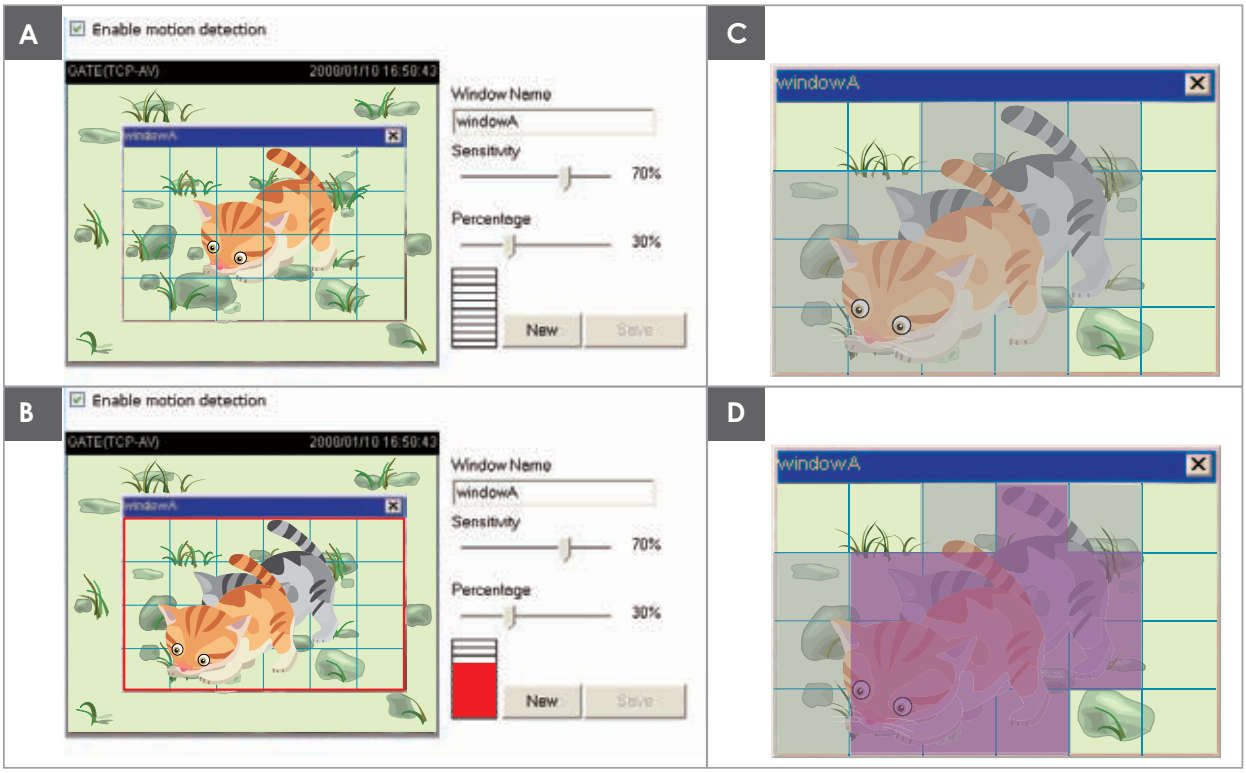


Please follow the steps below to set up a profile:
1. Create a new motion detection window.
2. Check **Enable this profile**.
3. Manually enter a time range for Schedule mode.
4. Click **Save** to enable the settings and click **Close** to exit the page.

This motion detection window will also be displayed on the Event Settings page. You can go to Application > Event Settings > Trigger to choose it as a trigger source. Please refer to page 83 for detailed information.

NOTE:

► *How does motion detection work?*



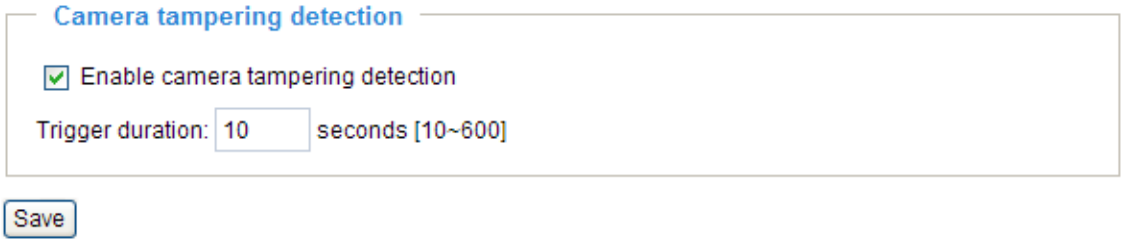
There are two motion detection parameters: Sensitivity and Percentage. In the illustration above, frame A and frame B are two sequential images. Pixel differences between the two frames are detected and highlighted in gray (frame C) and will be compared with the sensitivity setting. Sensitivity is a value that expresses the sensitivity to moving objects. Higher sensitivity settings are expected to detect slight movements while smaller sensitivity settings will neglect them. When the sensitivity is set to 70%, the Network Camera defines the pixels in the purple areas as "alerted pixels" (frame D).

Percentage is a value that expresses the proportion of "alerted pixels" to all pixels in the motion detection window. In this case, 50% of pixels are identified as "alerted pixels". When the percentage is set to 30%, the motions are judged to exceed the defined threshold; therefore, the motion window will be outlined in red.

For applications that require a high level of security management, it is suggested to use higher sensitivity settings and smaller percentage values.

Camera Tampering Detection

With tamper detection, the camera is capable of detecting incidents such as **redirection**, **blocking or defocusing**, or even **spraying paint onto the camera**.



Please follow the steps below to set up the camera tamper detection function:

1. Select **Enable camera tampering detection**.
2. Enter the tamper trigger duration. (10 sec. ~ 10 min.) The tampering alarm will be triggered only when the tampering factor (the difference between current frame and pre-saved background) exceeds the trigger threshold.
3. Set up the event source as Camera Tampering Detection on **Application page** > **Event Settings / Server Settings (how to send alarm message) / Media Settings (send what type of alarm message)**. Please refer to page 83 for detailed information.

Homepage Layout Advanced Mode

This section explains how to set up your own customized homepage layout.

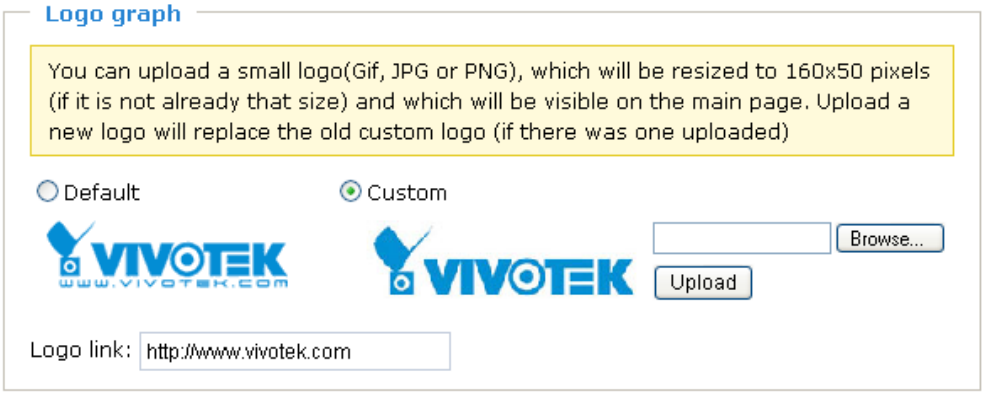
Preview

This column shows the settings of your homepage layout. You can manually select the background and font colors in Theme Options (the third column on this page). The settings will be displayed automatically in this Preview field. The following shows the homepage using the default settings:

■ Hide Powered by VIVOTEK: If you check this item, it will be removed from the homepage.

Logo

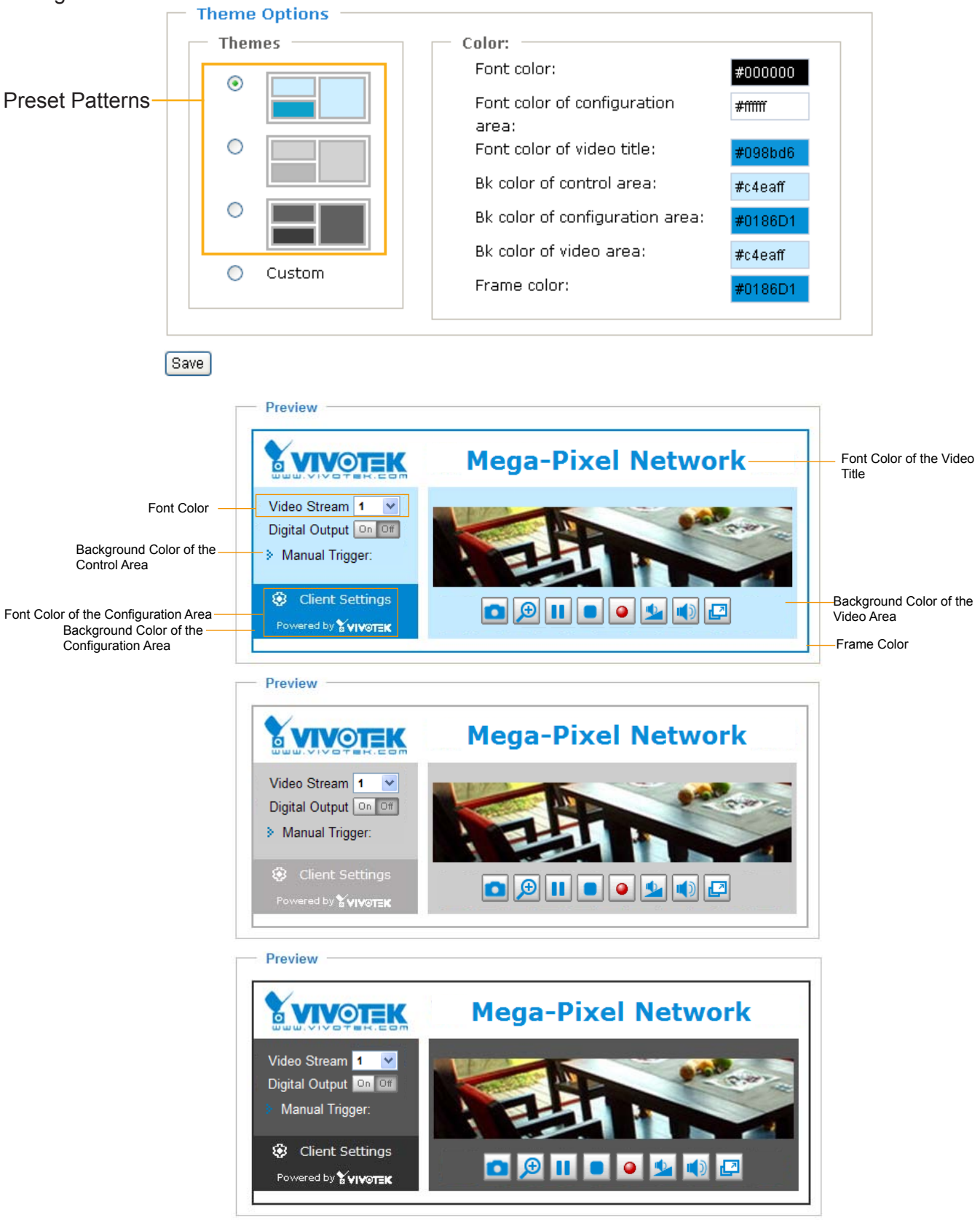
Here you can change the logo at the top of your homepage.



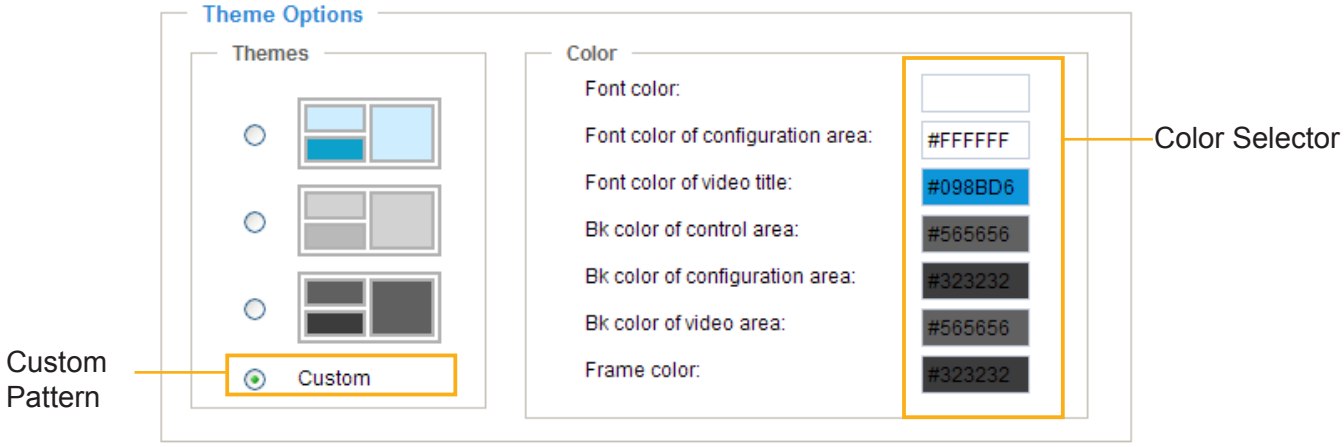
Follow the steps below to upload a new logo:
1. Click **Custom** and the Browse field will appear.
2. Select a logo from your files.
3. Click **Upload** to replace the existing logo with a new one.
4. Enter a website link if necessary.
5. Click **Save** to enable the settings.

Theme Options

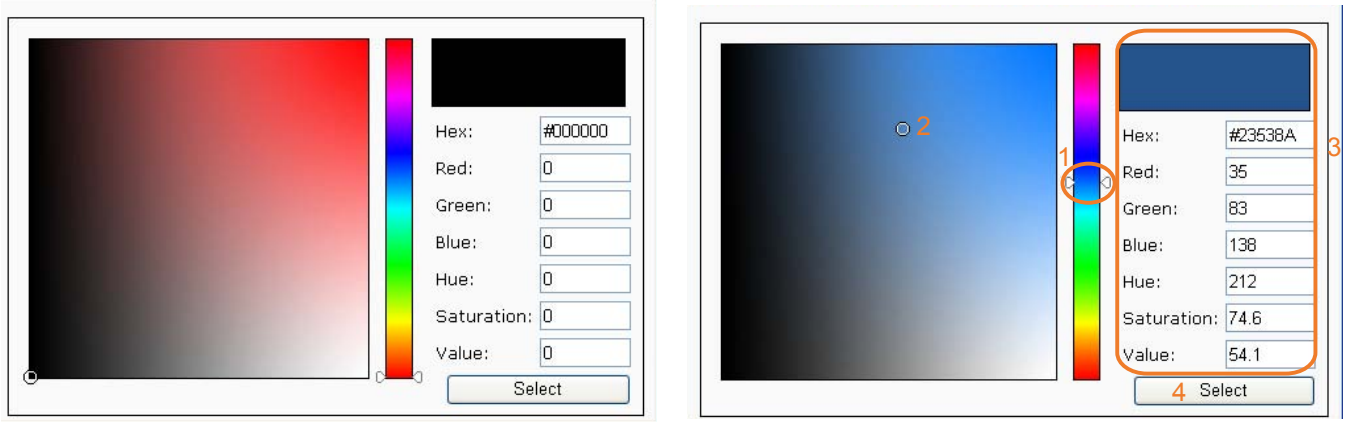
Here you can change the color of your homepage layout. There are three types of preset patterns for you to choose from. The new layout will simultaneously appear in the **Preview** filed. Click **Save** to enable the settings.



■ Follow the steps below to set up the custom homepage:
1. Click **Custom** on the left column.
2. Click the color Hex field where you want to change the color on the right hand side column.



3. The palette window will pop up as shown below.

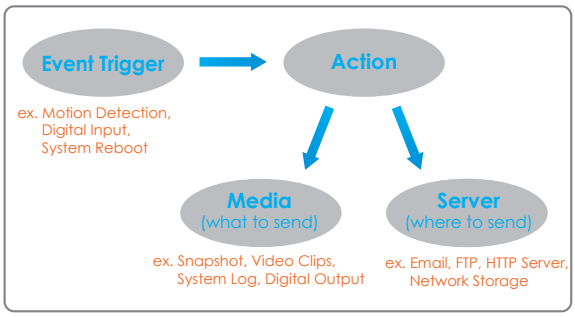


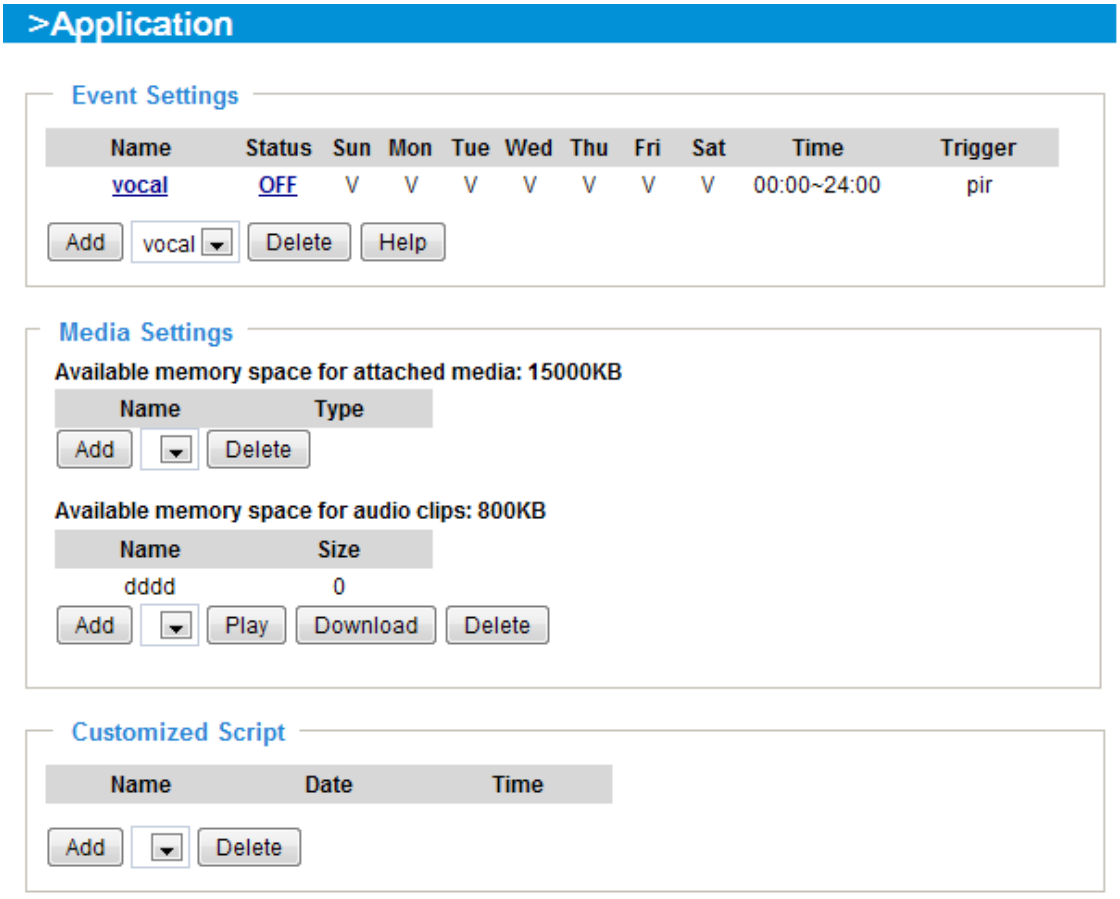
4. Drag the slider bar and click on the left square to select a desired color.
5. The selected color will be displayed in the corresponding fields and in the **Preview** column.
6. Click **Save** to enable the settings.

Application Advanced Mode

This section explains how to configure the Network Camera to responds to particular situations (event). A typical application is that when a motion is detected, the Network Camera sends buffered images to an FTP server or e-mail address as notifications.

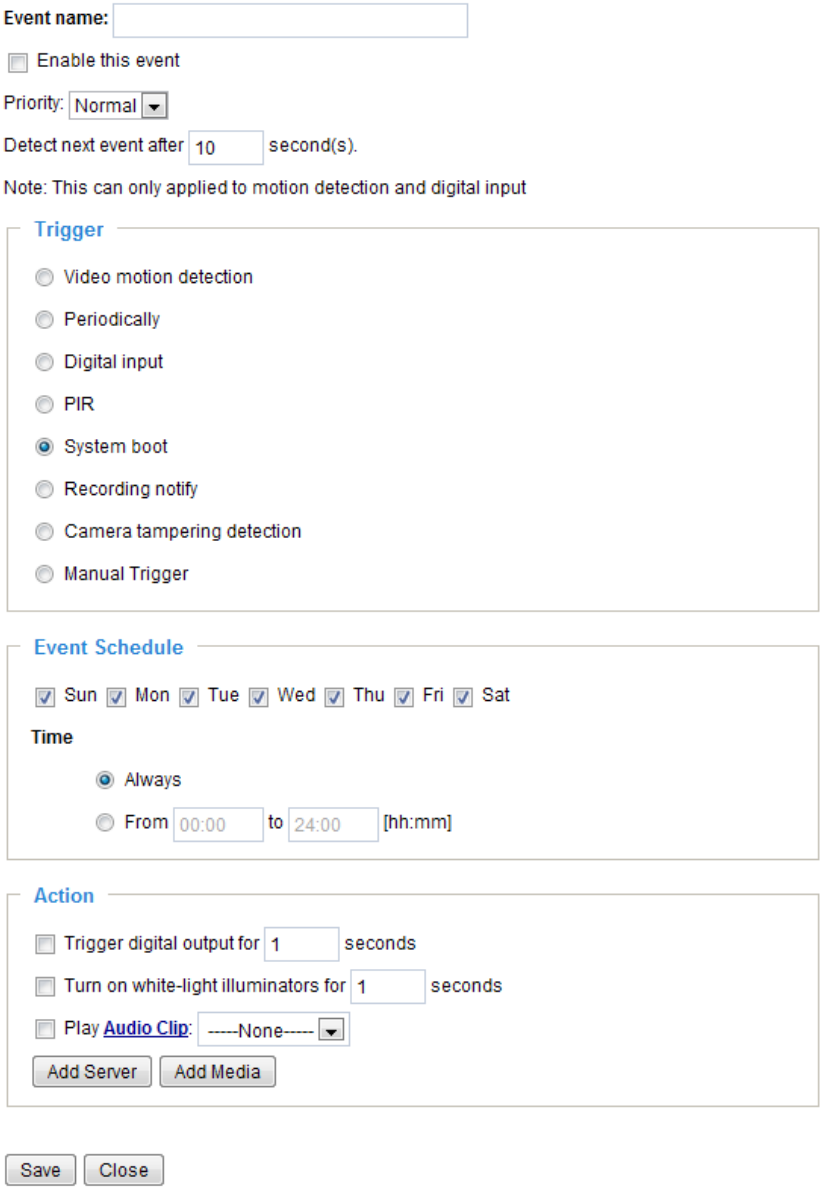
As shown on the right, an event can be triggered by many sources, such as motion detection, PIR (Passive Infra Red motion detector - IP8133 & IP8133W), or external digital input devices. When an event is triggered, you can specify what type of action that will be performed. You can configure the Network Camera to send snapshots or videos to your email address or FTP site.





Event Settings

In the **Event Settings** column, click **Add** to open the **Event Settings** page. On this page, you can arrange three elements -- Trigger, Schedule, and Action to set an event. A total of 3 event settings can be configured.



Event name: Enter a name for the event setting.

Enable this event: Select this option to enable the event setting.

Priority: Select the relative importance of this event (High, Normal, or Low). Events with a higher priority setting will be executed first.

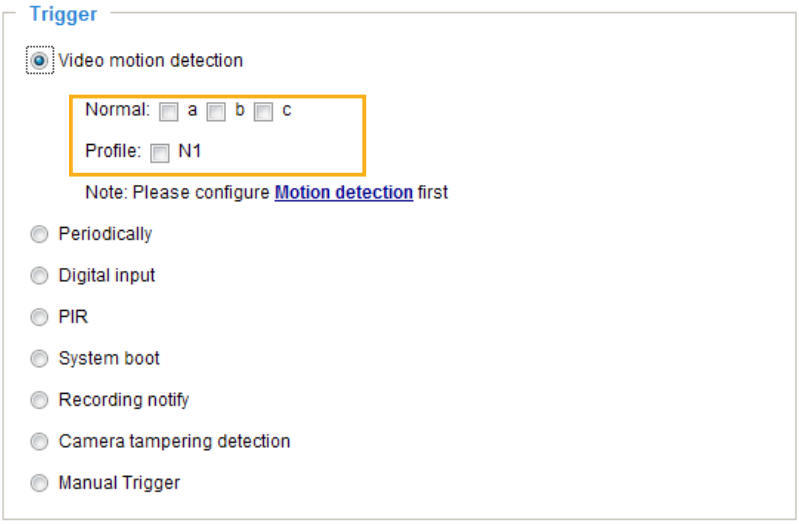
Detect next event after ☐ seconds: Enter the duration in seconds to temporarily pause motion detection after a motion is detected. This prevents event broadcast to be too frequently delivered.

An event is an action initiated by a user-defined trigger source; it is the causal arrangement of the following three elements: Trigger, Event Schedule, and Action.

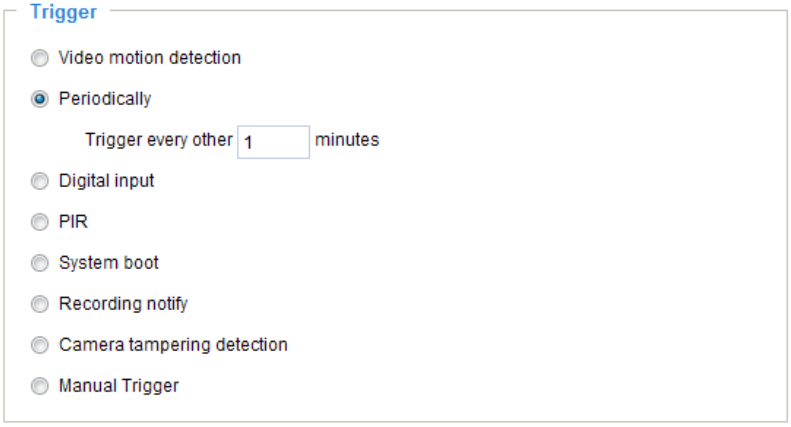
Trigger

This is the cause or stimulus which defines when to trigger the Network Camera. The trigger source can be configured to use the Network Camera's built-in motion detection mechanism, PIR, Tampering Detection, or external digital input devices.
There are several choices of trigger sources as shown below. Select the item to display the detailed configuration options.

■ Video motion detection
This option makes use of the built-in motion detection mechanism as a trigger source. To enable this function, you need to configure a Motion Detection Window first. For more information, please refer to Motion Detection on page 74 for details.



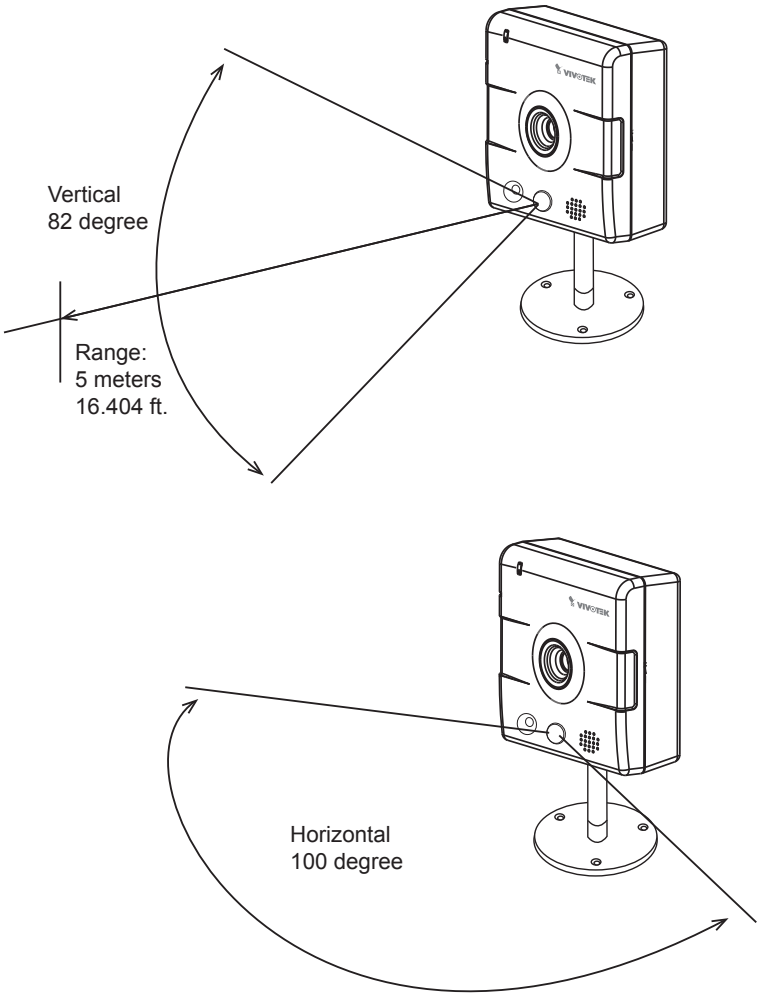
■ Periodically
This option allows the Network Camera to trigger periodically for every other defined minute. Up to 999 minutes are allowed.



■ Digital input
This option allows the Network Camera to use an external digital input device or sensor as a trigger source. Depending on your application, there are many choices of digital input devices on the market which helps to detect changes in temperature, vibration, sound, and light, etc.

■ PIR (Passive Infra Red motion detector)

When directed towards an anticipated area of interest, the PIR can be used to detect movements or intrusion, especially for detecting moving objects in the dark. PIR can be more effecive than video motion detection. Shown below is the effective range of the PIR detector (IP8133 and IP8133W only).



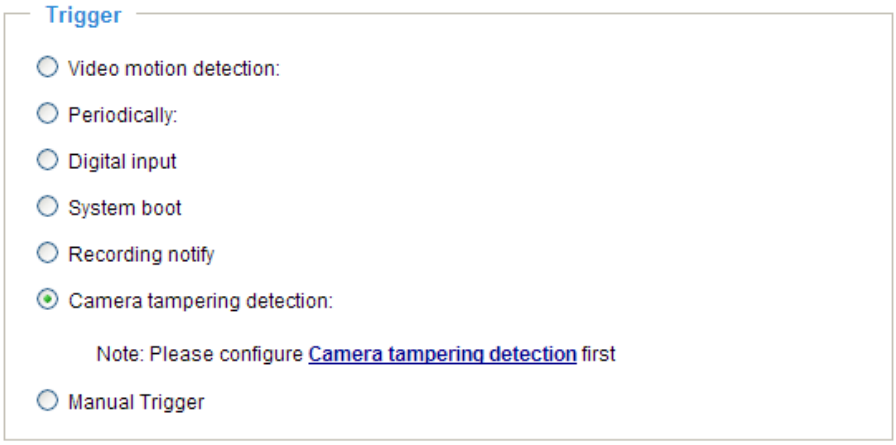
■ System boot

This option triggers the Network Camera when the power to the Network Camera is disconnected.

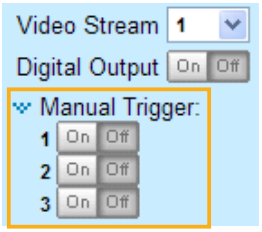
■ Recording notify

This option allows the Network Camera to trigger when the recording disk is full or when recording starts to rewrite older data.

■ Camera tampering detection
This option allows the Network Camera to trigger when the camera detects that is is being tampered with. To enable this function, you need to configure the Tampering Detection option first. Please refer to page 77 for detailed information.

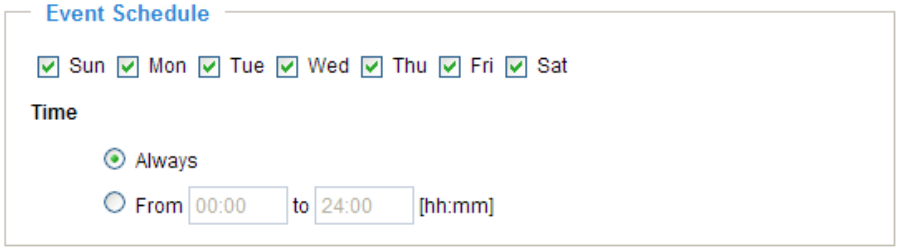


■ Manual Trigger
This option allows user to enable event triggers manually by clicking the on/off button on the homepage. Please configure 1 to 3 events before using this function.



Event Schedule

Specify the period fo time in which the event will take effect.

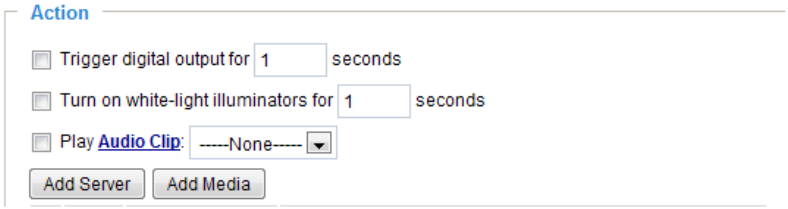


■ Select the days of the week.

■ Select the recording schedule in 24-hr time format.

Action

Define the actions to be performed by the Network Camera when a trigger is activated.



To set an event with recorded video or snapshots, it is necessary to configure the server and media settings so that the Network Camera will know what action to take (such as which server

to send the media files to) when a trigger is activated.

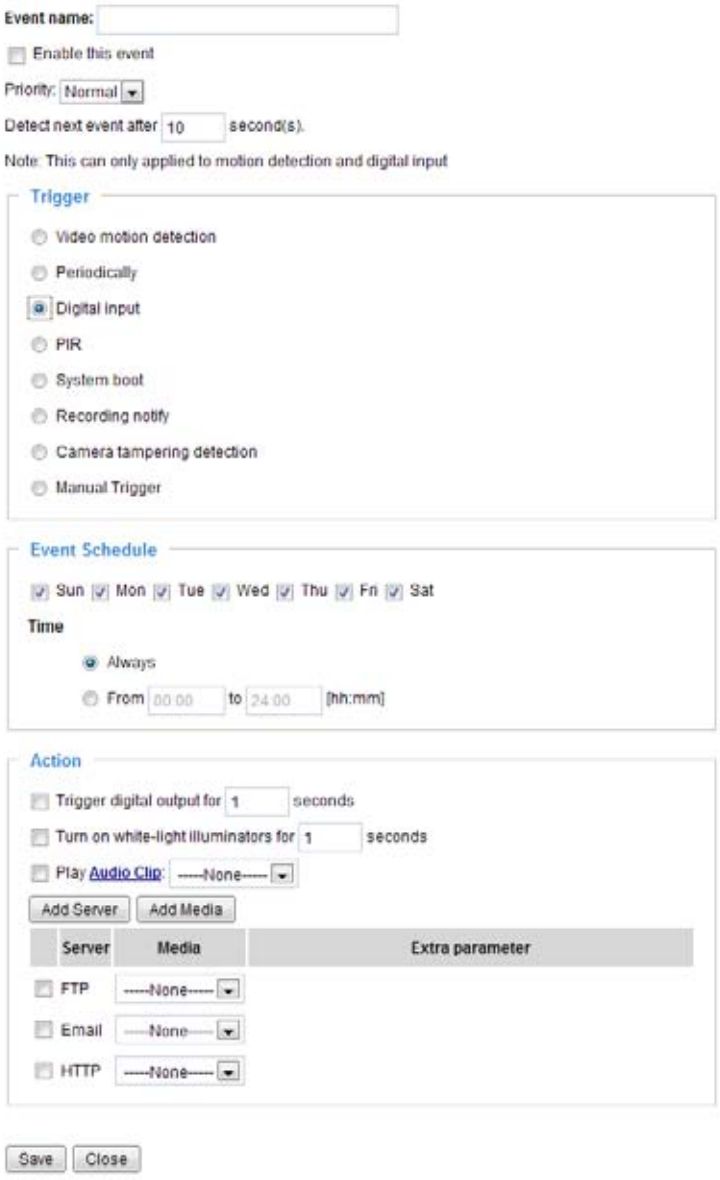
- Trigger digital output for _ seconds: You can enter a number here to turn on an external device for a duration of several seconds via the digital output connection.
- Turn on white-light illuminators for _ seconds: You may also turn on the white LED to light up the scene during the occurence of a system event. Note that it is not recommended to turn on the LED for an extended period of time.
- Play Audio Clip: You use the onboard microphone to record a short vocal message or upload audio files from your PC. See Add Media in the later discussions. The camera can then playback a recorded vocal message when an event is triggered.

- Add Server / Add Media

  Click **Add Server** to configure Server Settings. For more information, please refer to Server Settings on page 88.

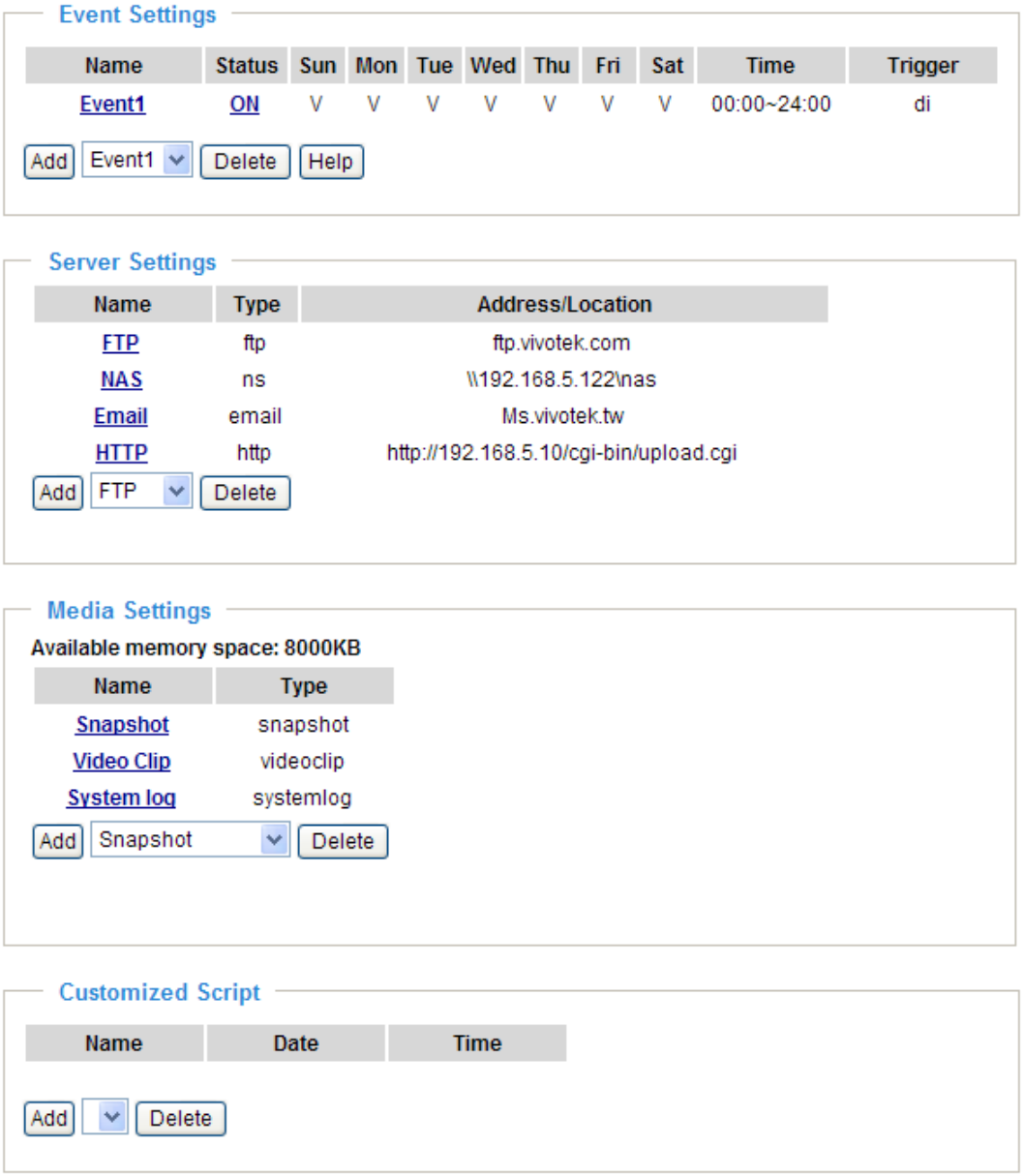
  Click **Add Media** to configure Media Settings. For more information, please refer to Media Settings on page 91.

Here is an example of the Event Settings page:



When completed, click **Save** to enable the settings and click **Close** to exit Event Settings page. The new event settings / server settings / media settings will appear in the event drop-down list on the Application page.

Here is an example of the Application page with an event setting:



When the Event Status is **ON**, once an event is triggered by motion detection, the Network Camera will automatically send snapshots via e-mail.

If you want to stop the event trigger, you can click **ON** to turn it to **OFF** status or click **Delete** to remove the event setting.

To remove a server setting from the list, select a server name from the drop-down list and click **Delete**. Note that only when the server setting is not being applied to an event setting can it be deleted.

To remove a media setting from the list, select a media name from the drop-down list and click **Delete**. Note that you can remove a media setting only when it is not applied to an existing event configuration.

Server Settings (Means by which to Deliver a Triggered Event)

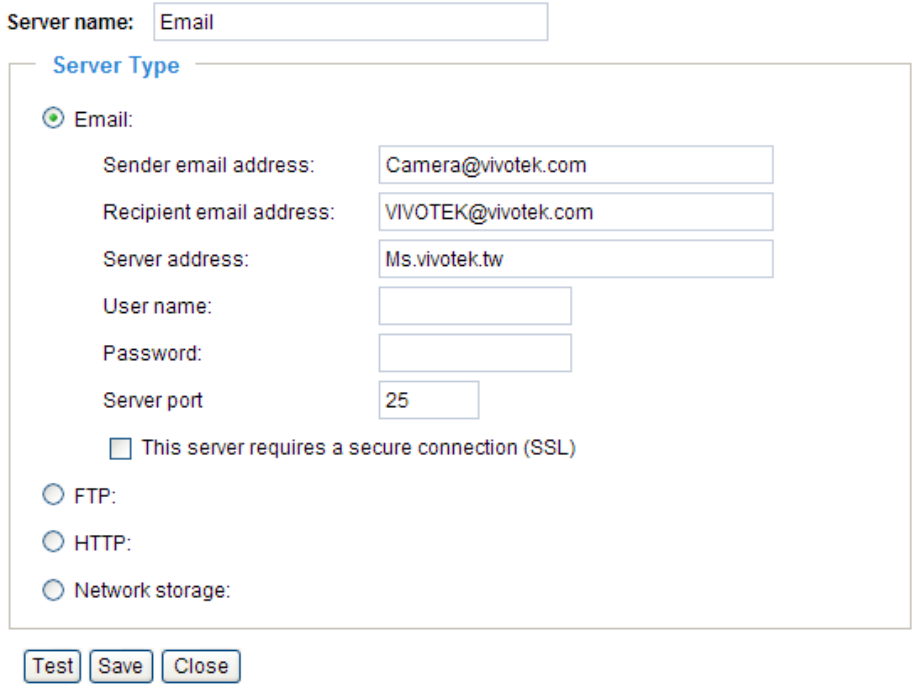
Click **Add Server** on Event Settings page to open the Server Setting page. On this page, you can specify where the notification messages are sent when a trigger is activated. A total of 5 server settings can be configured.

Server name: Enter a name for the server setting.

Server Type

There are four choices of server types available: Email, FTP, HTTP, and Network storage. Select the item to display the detailed configuration options. You can configure either one or all of them.

Email: Select to send the media files via email when a trigger is activated.



■ Sender email address: Enter the email address of the sender.

■ Recipient email address: Enter the email address of the recipient.

■ Server address: Enter the domain name or IP address of the email server.

■ User name: Enter the user name of the email account if necessary.

■ Password: Enter the password of the email account if necessary.

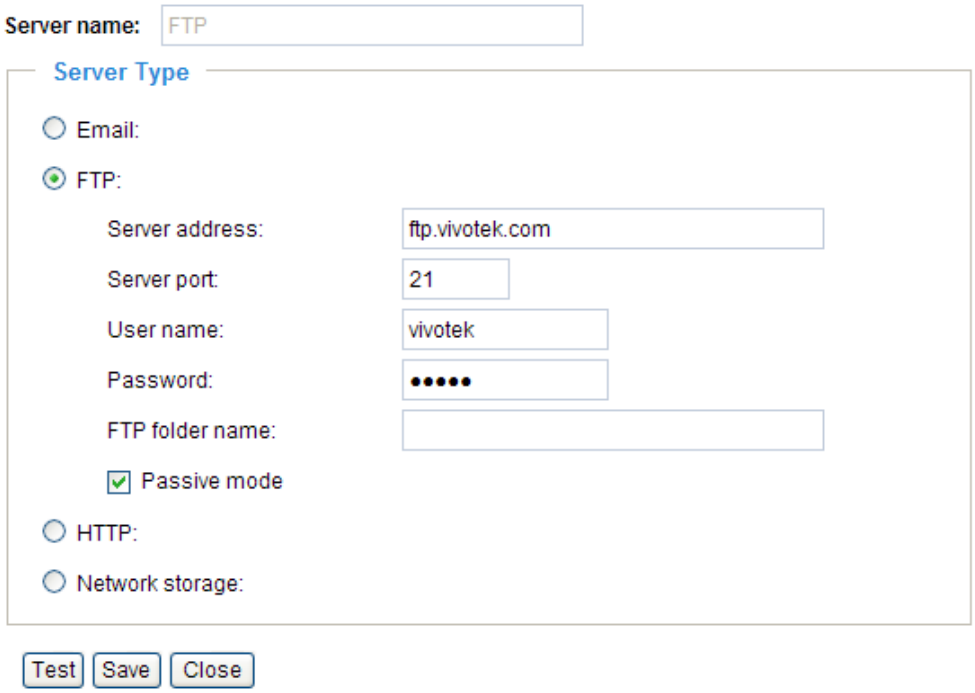
■ Server port: The default mail server port is set to 25. You can also manually set another port.

If your SMTP server requires a secure connection (SSL), check **This server requires a secure connection (SSL).**

To verify if the email settings are correctly configured, click **Test**. The result will be shown in a pop-up window. If successful, you will also receive an email indicating the result.

Click **Save** to enable the settings, then click **Close** to exit the page.

FTP: Select to send the media files to an FTP server when a trigger is activated.



■ Server address: Enter the domain name or IP address of the FTP server.

■ Server port
By default, the FTP server port is set to 21. It can also be assigned to another port number between 1025 and 65535.

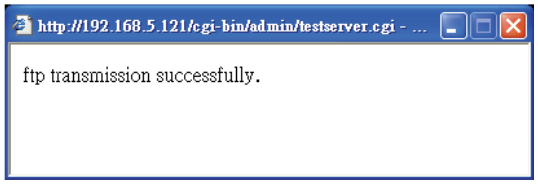
■ User name: Enter the login name of the FTP account.

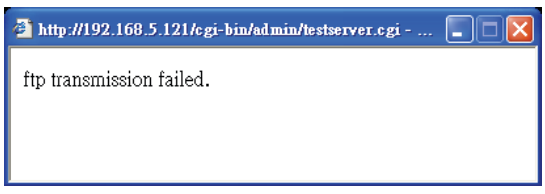
■ Password: Enter the password of the FTP account.

■ FTP folder name
Enter the folder where the media file will be placed. If the folder name does not exist, the Network Camera will create one on the FTP server.

■ Passive mode
Most firewalls do not accept new connections initiated from external requests. If the FTP server supports passive mode, select this option to enable passive mode FTP and allow data transmission to pass through the firewall.

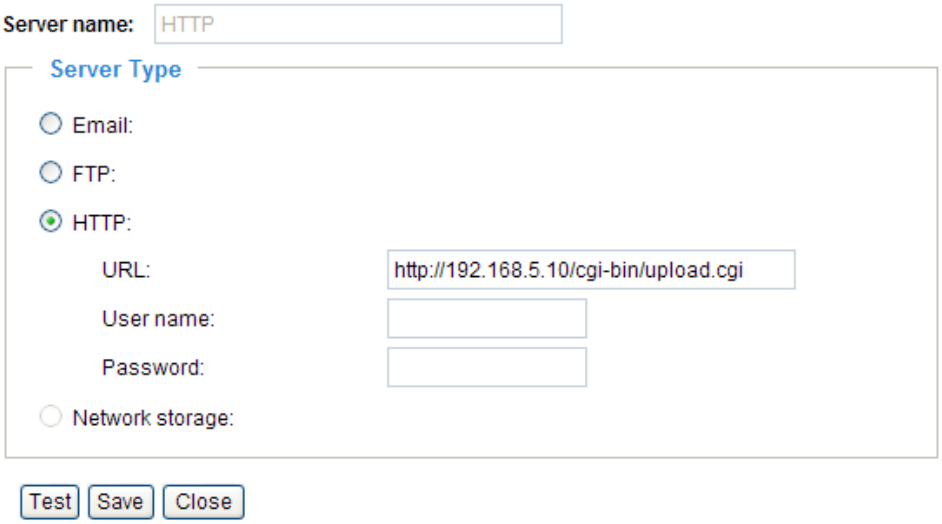
To verify if the FTP settings are correctly configured, click **Test**. The result will be shown in a pop-up window as shown below. If successful, you will also receive a test.txt file on the FTP server.





Click **Save** to enable the settings, then click **Close** to exit the page.

HTTP: Select to send the media files to an HTTP server when a trigger is activated.

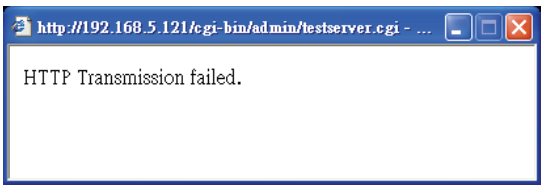


■ URL: Enter the URL of the HTTP server.

■ User name: Enter the user name if necessary.

■ Password: Enter the password if necessary.

To verify if the HTTP settings are correctly configured, click **Test**. The result will be shown in a pop-up window as below. If successful, you will receive a test.txt file on the HTTP server.

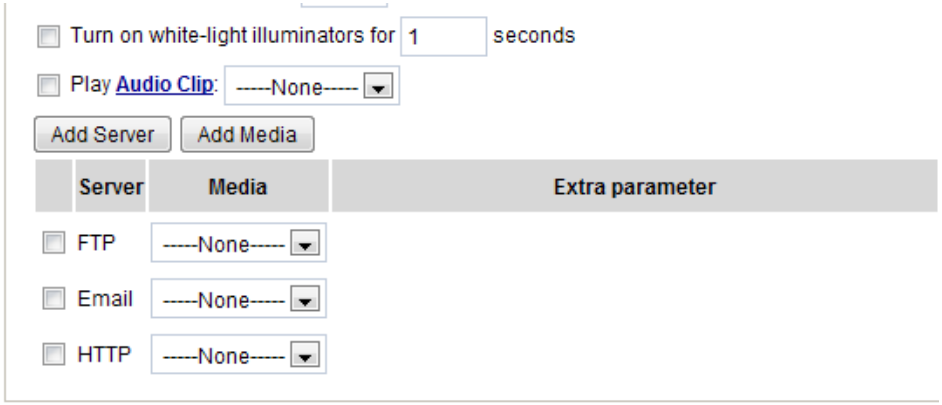


Click **Save** to enable the settings, then click **Close** to exit the page.

Network storage: Select to send the media files to a network storage location when a trigger is activated. Please refer to **Network Storage Setting** on page 97 for details.

Click **Save** to enable the settings, then click **Close** to exit the page.

When completed, the new server settings will automatically be displayed on the Event Settings page. For example:



Media Settings (the Type of Contents that will be Preserved from a Triggered Event)

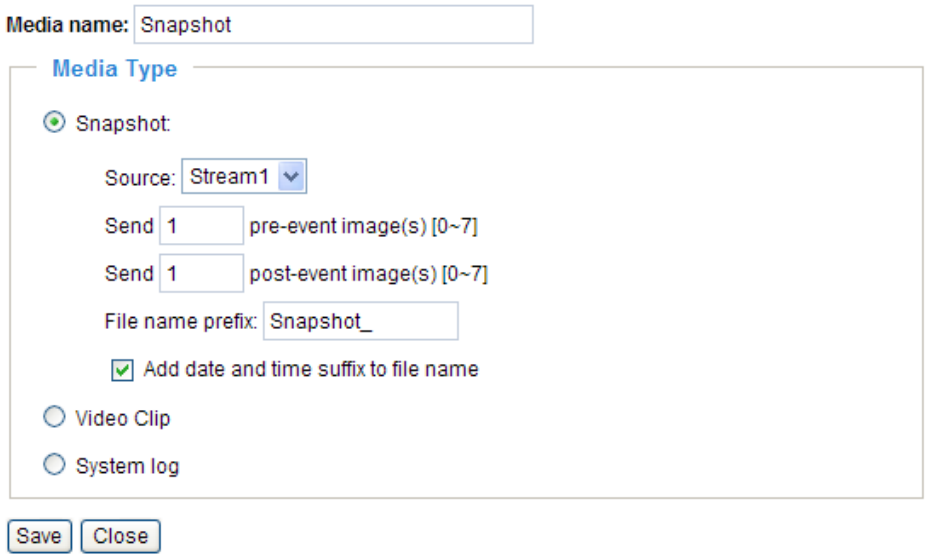
Click **Add Media** on the Event Settings page to open the Media Settings page. On this page, you can specify the type of media that will be sent when a trigger is activated. A total of 5 media settings can be configured.

Media name: Enter a name for the media setting.

Media Type

There are three choices of media types available: Snapshot, Video Clip, and System log. Select the item to display the detailed configuration options. You can configure either one or all of them.

Snapshot: Select to send snapshots when a trigger is activated.

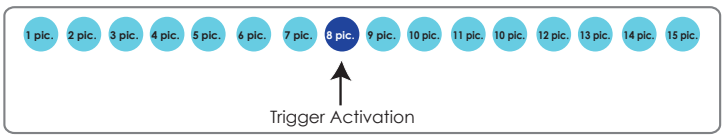


■ Source: Select any of the video streams as a source of snapshot.

■ Send ☐ pre-event images
The Network Camera has a buffer area; it temporarily holds data up to a certain limit. Enter a number to decide how many images to capture before a trigger is activated. Up to 7 images can be generated.

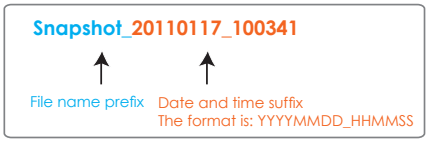
■ Send ☐ post-event images
Enter a number to decide how many images to capture after a trigger is activated. Up to 7 images can be generated.

For example, if both the Send pre-event images and Send post-event images are set to 7, a total of 15 images are generated after a trigger is activated.



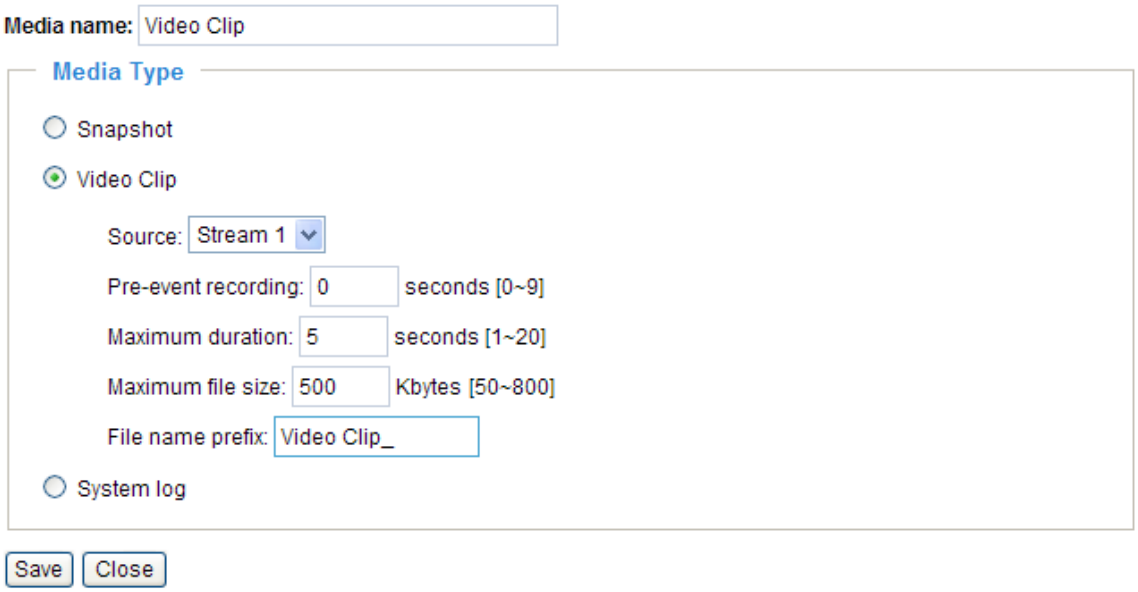
■ File name prefix
Enter the text that will be appended to the front of the file name.

■ Add date and time suffix to the file name
Select this option to add a date/time suffix to the file name.
For example:



Click **Save** to enable the settings, then click **Close** to exit the page.

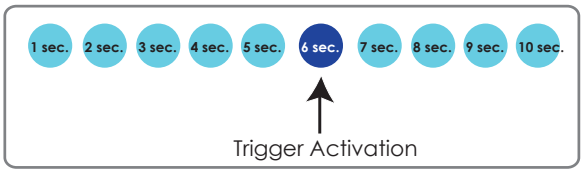
Video clip: Select to send video clips when a trigger is activated.



■ Source: Select any of the video streams as a source of video clip.

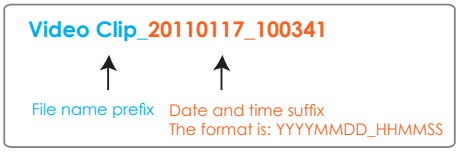
■ Pre-event recording
The Network Camera has a buffer area; it temporarily holds data up to a certain limit. Enter a number to decide the duration of recording before a trigger is activated. Up to 9 seconds can be set.

■ Maximum duration
Specify the maximum recording duration in seconds. You can record an event-triggered video for up to 20 seconds.
For example, if pre-event recording is set to 5 seconds and the maximum duration is set to 10 seconds, the Network Camera continues to record for another 4 seconds after a trigger is activated.



■ Maximum file size
Specify the maximum file size allowed.

■ File name prefix
Enter the text that will be appended to the front of the file name.
For example:

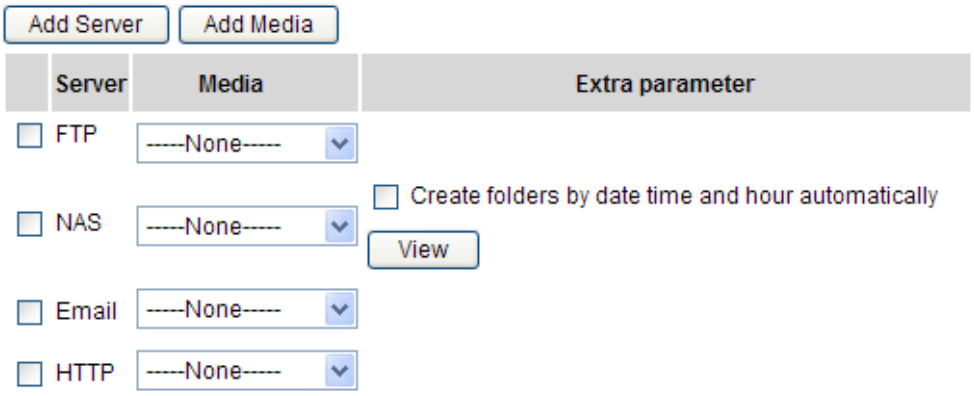


Click **Save** to enable the settings, then click **Close** to exit the page.

System log: Select to send a system log when a trigger is activated.
Click **Save** to enable the settings, then click **Close** to exit the page.

When completed, click **Save** to enable the settings and click **Close** to exit this page. The new media settings will appear on the Event Settings page.

You can continue to select a server and media type for the event. Please refer to page 86 for detailed information.

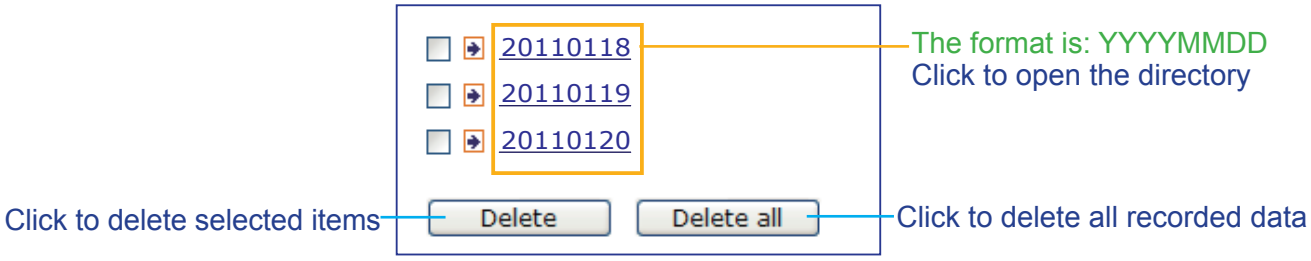


- Create folders by date, time, and hour automatically: If you check this item, the system will generate folders automatically by date.
- View: Click this button to open a file list window. This function is only for **Network Storage (NAS)**. If you click **View** button of Network storage, a **file directory window** will prompt for you to view recorded data on Network storage. For detailed illustration, please refer to the next page.

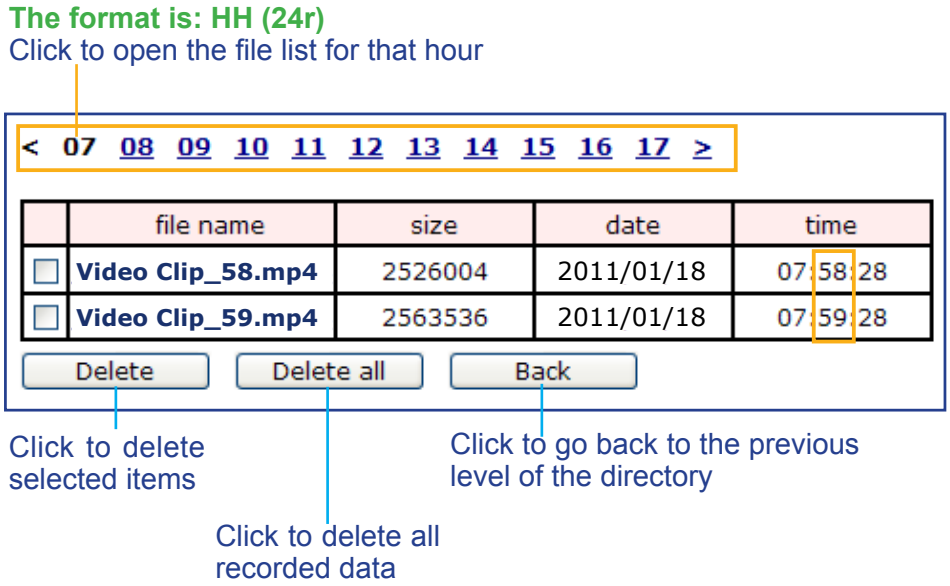
NOTE:

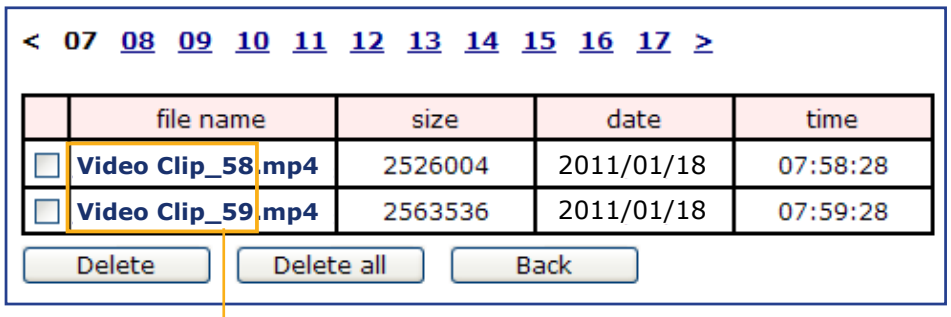
The **Create folders by date/time/hour** checkbox and the **View** button may not be available until you test the connectivity using the **Test** button in each Server setting window.

The following is an example of a file destination with video clips:



Click **20110118** to open the directory:



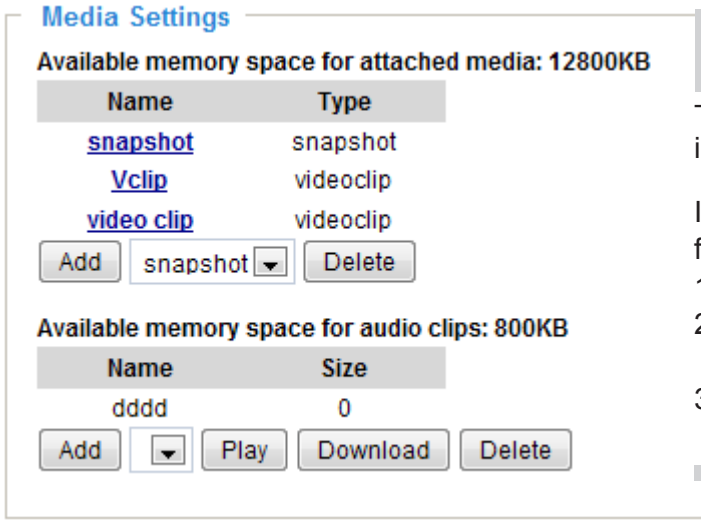


The format is: File name prefix + Minute (mm)
You can set up the file name prefix on Media Settings (Video Clip) page.
Please refer to page 91 for detailed information.

Media Settings

The **Media Settings** panel on the **Application** page is displayed when there are existing media settings. They are identical to those configured in the **Add Media** panel of the **Event Settings** (See page 91). Due to the limited size of the onboard memory, the media contents recorded during the occurrences of events should be delivered to the recipient side via Email, FTP, HTTP, or Network Storage. The onboard memory is primarily used as a transaction storage for capturing pre-event contents, and hopefullly critical data will be preserved if the camera is maliciously disconnected.

Please note that a small amount of memory is preserved for audio recordings that will be used as a vocal message to someone on the scene or intruders. Audio clip playback is one of the event-triggered actions.



NOTE:

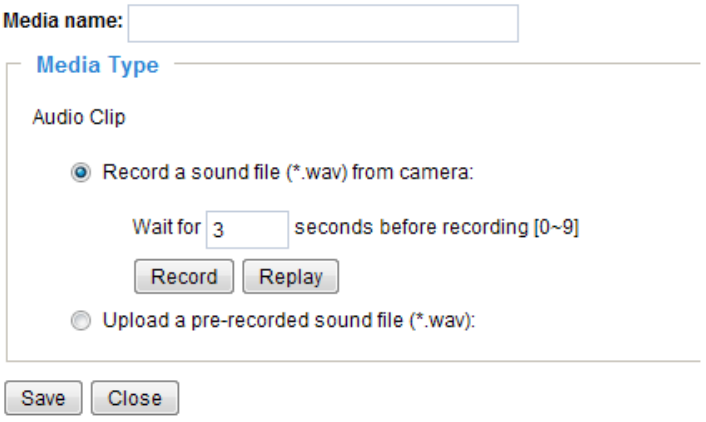
The recorded audio will be saved as mono waves, in 8 KHz and 16-bit format.

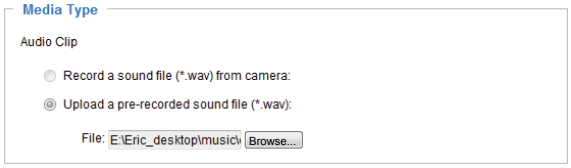
If you prefer upload audio files to your camera, the following should be noticed:

1. Stereo will be converted to mono.
2. Higher KHz (e.g., 22.050 KHz) audio will be downgraded to 8 KHz.
3. Only **16-bit** files are supported. **8-bit** wave files are not supported.

Click **Add** to enter the recording page. You can grab the camera close to you and record a vocal message using the onboard microphone. To record a vocal message:

1. Enter a name for the recording.
2. Configure an elapse of time before the recording takes place after you click the **Record** button.
3. Click on the **Record** button. A recording progress window will prompt. Click **Stop** to end the recording.
4. Click **Replay** to ensure you have a satisfactory recording.
5. Click **Save** and click the **Close** button to end the process.



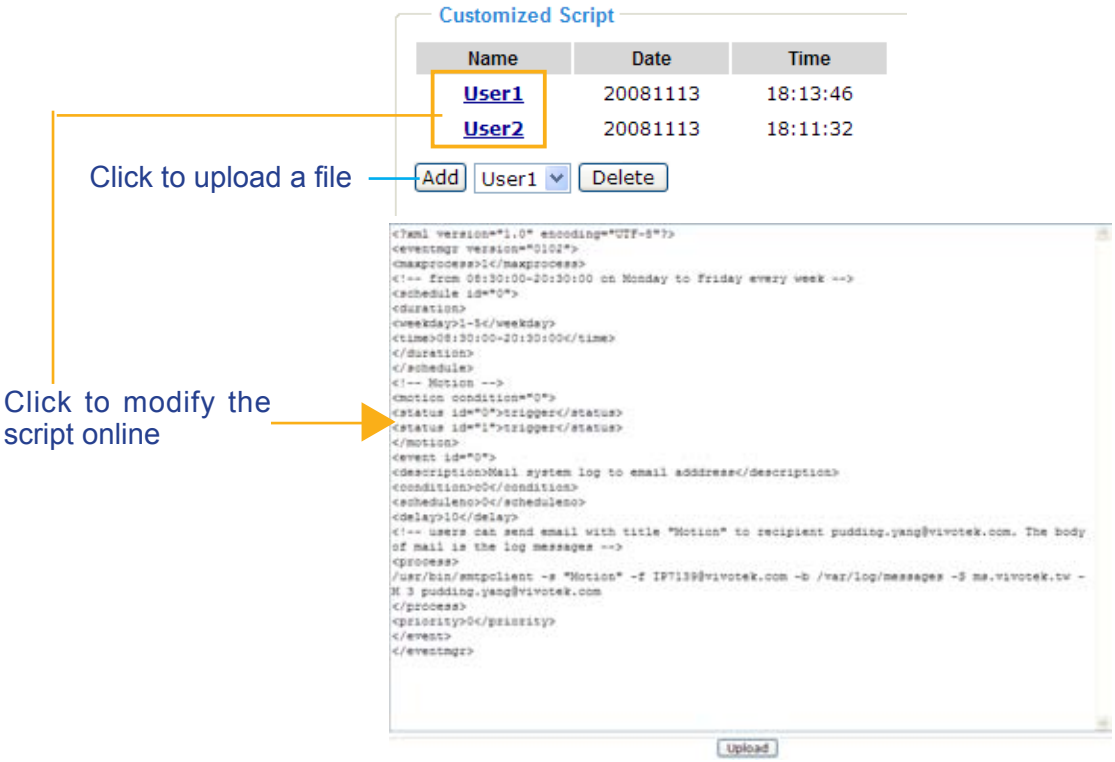


You can click the **Download** button to download the recorded wave file to your PC or click **Delete** to remove it from camera memory.

If you have audio wave files ready on your PC, you can upload the wave files to a camera using the corresponding **Upload** checkcircle in the Media Type window.

Customized Script

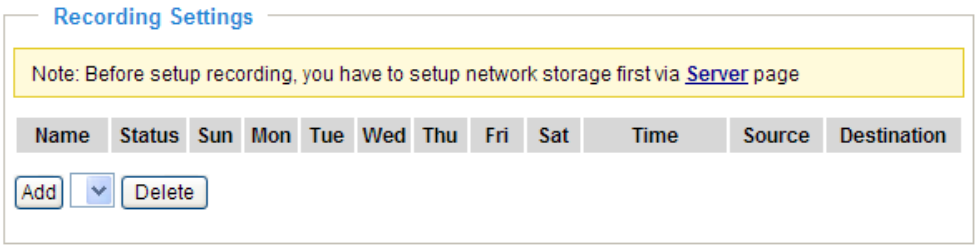
This function allows you to upload a sample script (.xml file) to the webpage, which will save your time on configuring the settings. Please note that there is a limited number of customized scripts you can upload; if the current amount of customized scripts has reached the limit, an alert message will pop up. If you need more information, please ask for VIVOTEK technical support.



Recording Advanced Mode

This section explains how to configure the recording settings for the Network Camera.

Recording Settings



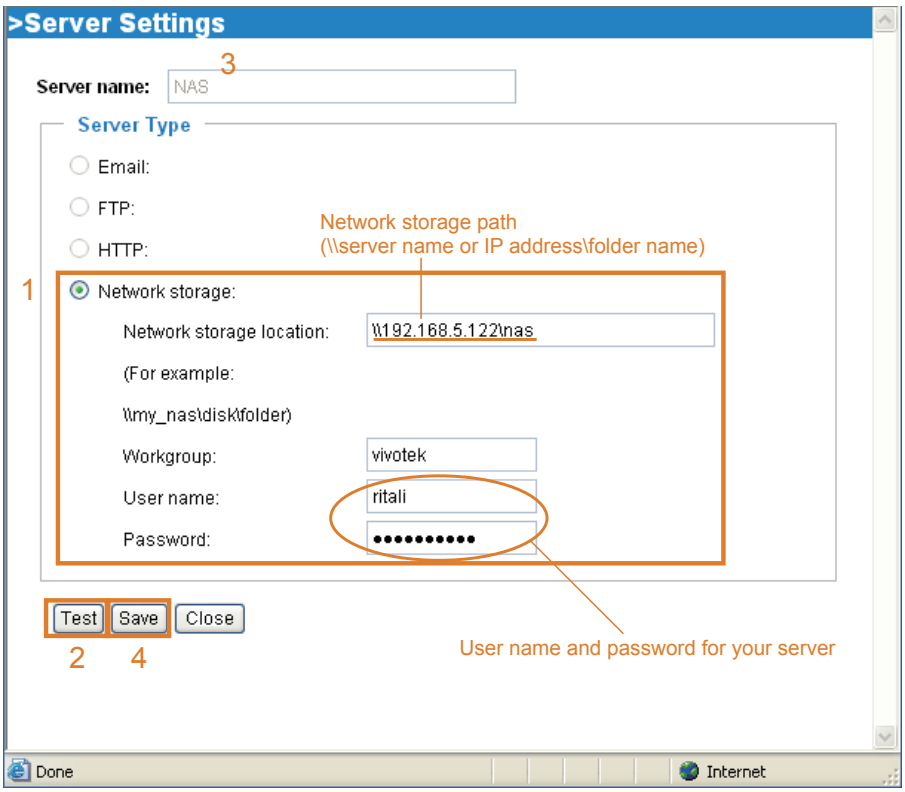
NOTE:

Before setting up this page, please configure the Network Storage on the Server Settings page first.

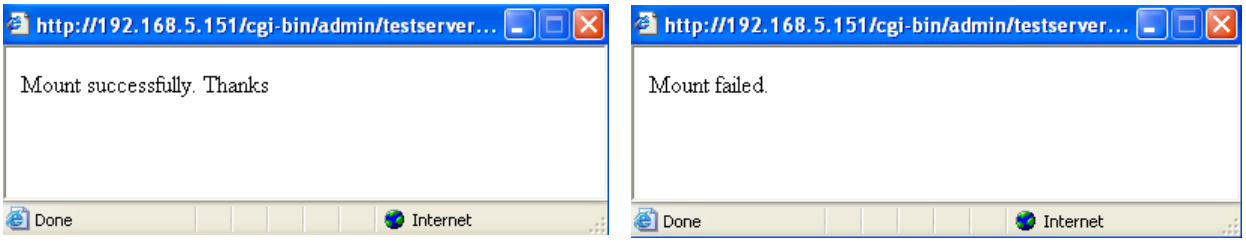
Network Storage Setting

Click Server to open the Server Settings page and follow the steps below to set up:

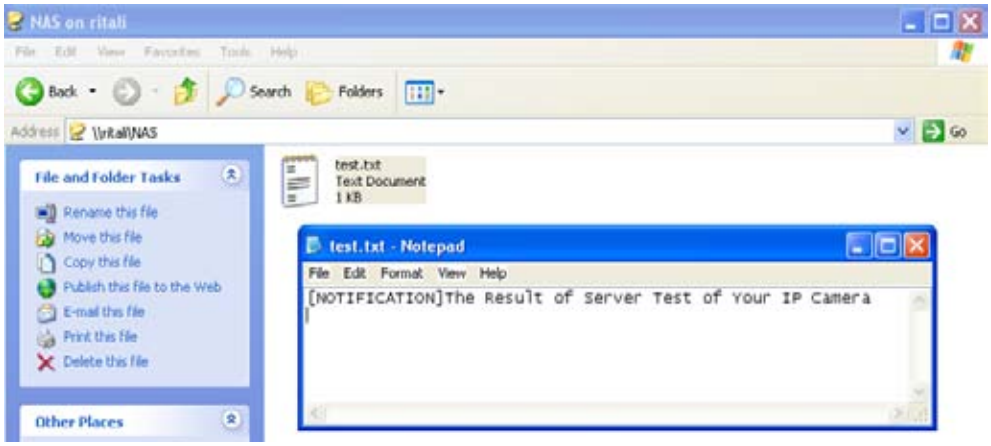
1. Fill in the information for your server.
   For example:



2. Click **Test** to check the setting. The result will be shown in the pop-up window.



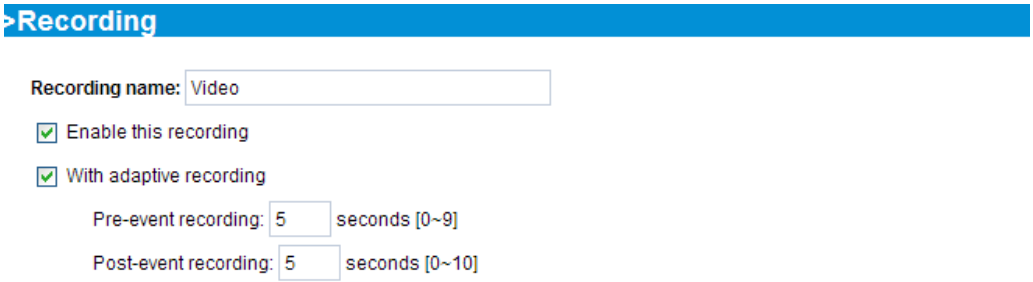
If successful, you will receive a test.txt file on the network storage server.



3. Enter a server name.
4. Click **Save** to complete the settings and click **Close** to exit the page.

Recording Settings

Click **Add** to open the recording setting page. On this page, you can define the adaptive recording, recording source, recording schedule, and recording capacity. A total of 2 recording settings can be configured.

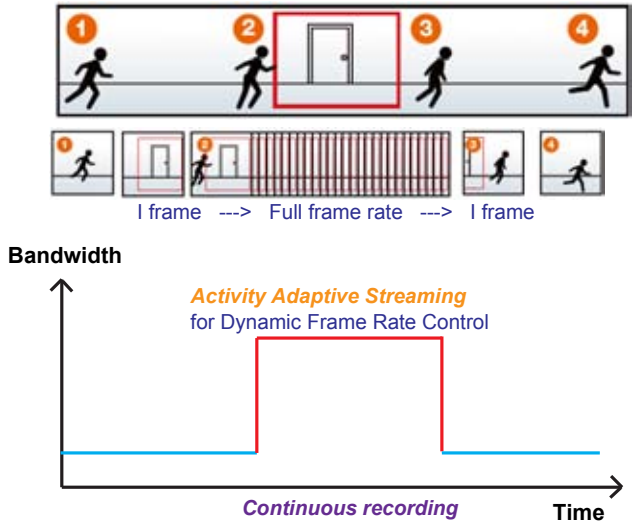


Recording name: Enter a name for the recording setting.

Enable this recording: Select this option to enable video recording.

With adaptive recording: Select this option will activate the frame rate control according to alarm trigger. The frame control means that when there is alarm trigger, the frame rate will raise up to the value you've set on Video page. Please refer to page 64 for more information.

If you enable adaptive recording on Camera A, only when an event is triggered on Camera A will the server record the full frame rate streaming data; otherwise, it will only request the I frame data during normal monitoring, thus effectively save lots of bandwidths and storage.

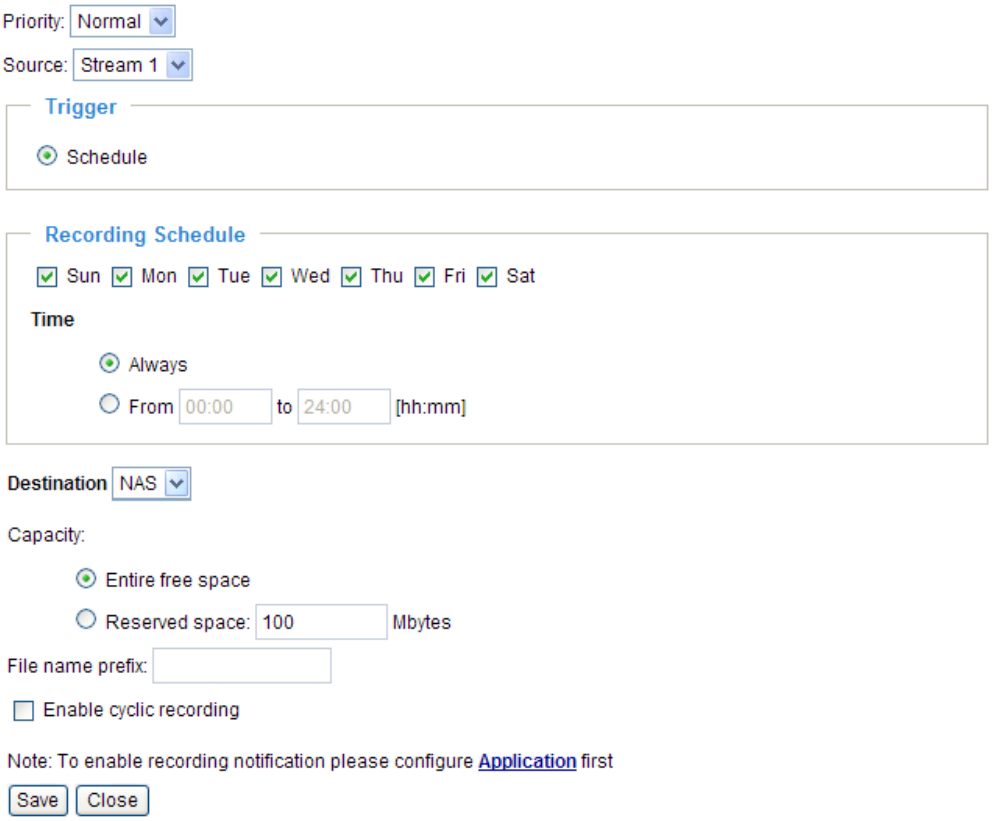


When there is no alarm trigger:
- JPEG mode: record 1 frame per second.
- H.264 mode: record the I frame only.
- MPEG-4 mode: record the I frame only.

When the I frame period is >1s on Video settings page, the I frame period will be forced down to 1s when the adaptive recording feature is activated.

The alarm trigger includes: motion detection, DI detection, and manual trigger, etc. Please refer to Event Settings on page 82.

■ Pre-event recording and post-event recording
The Network Camera has a buffer area; it temporarily holds data up to a certain limit. Enter a number to decide the duration of recording before and after a trigger is activated.



Priority: Select the relative importance of this recording setting (High, Normal, and Low).

Source: Select the recording source (stream 1 ~ 3).

Trigger

■ Schedule: The server will start to record files on the local storage or network storage (NAS) according to the following recording schedule.

Recording Schedule: Specify the recording duration.

■ Select the days of the week.

■ Select the recording start and end times in 24-hr time format.

Destination: Select the network storage that was set up for the recorded video files.

Capacity: You can choose either the entire free space available or limit the reserved space. The recording size limit must be larger than the reserved amount for cyclic recording.

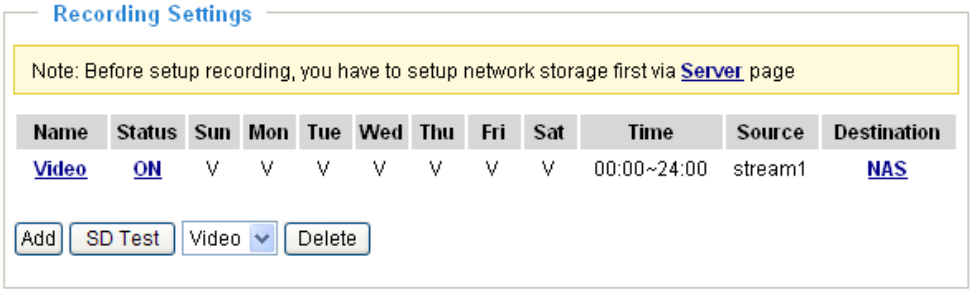
File name prefix: Enter the text that will be appended to the front of the file name.

Enable cyclic recording: If you check this item, when the maximum capacity is reached, the oldest file will be overwritten by the latest one. The reserved amount is reserved for cyclic recording during the transaction stage when the storage space is about to be fully filled. This value must be larger than 15 MBytes.

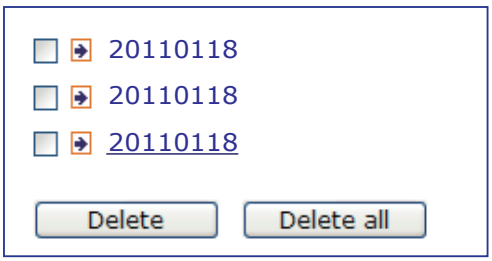
If you want to enable recording notification, please click **Application** to set up. Please refer to **Trigger > Recording notify** on page 85 for detailed information.

When completed, select **Enable this recording**. Click **Save** to enable the setting and click **Close** to exit this page. When the system begins recording, it will send the recorded files to the Network Storage.
The new recording name will appear in the drop-down list on the recording page as shown below.

To remove a recording setting from the list, select a recording name from the drop-down list and click **Delete**.



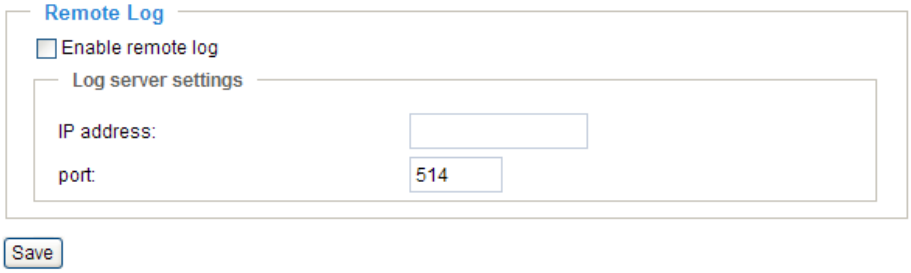
- Click **Video (Name)**: Opens the Recording Settings page to modify.
- Click **ON (Status)**: The Status will become **OFF** and stop recording.
- Click **NAS (Destination)**: Opens the file list of recordings as shown below. For more information about folder naming rules, please refer to page 94 for details.



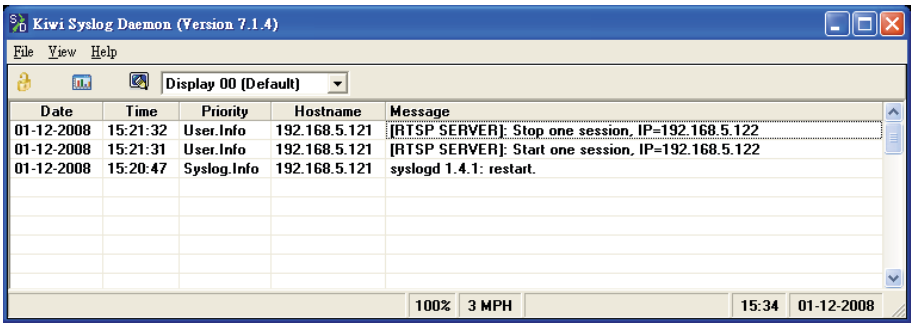
System Log Advanced Mode

This section explains how to configure the Network Camera to send the system log to the remote server as backup.

Remote Log

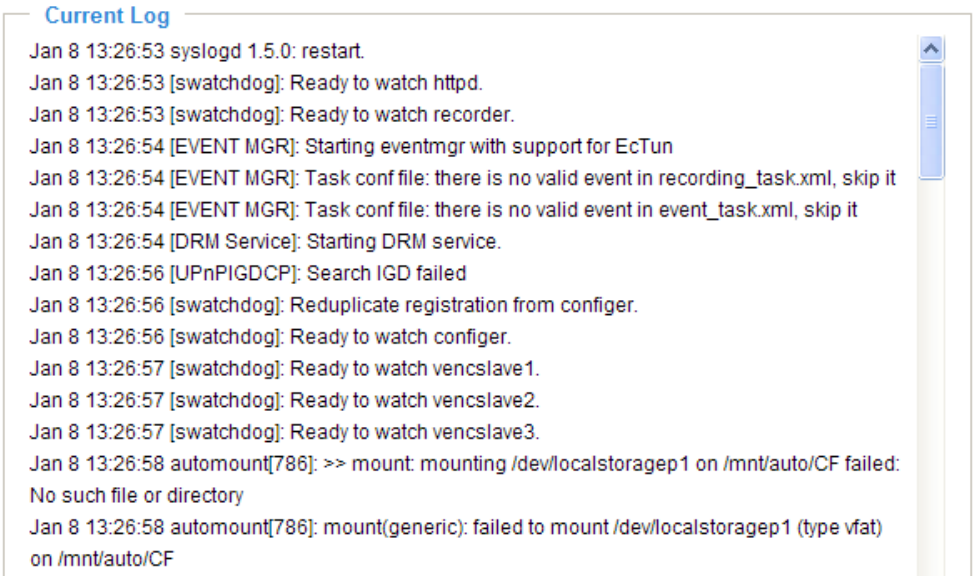


You can configure the Network Camera to send the system log file to a remote server as a log backup. Before utilizing this feature, it is suggested that the user install a log-recording tool to receive system log messages from the Network Camera. An example is Kiwi Syslog Daemon. Visit http://www.kiwisyslog.com/kiwi-syslog-daemon-overview/.



Follow the steps below to set up the remote log:
1. In the IP address text box, enter the IP address of the remote server.
2. In the port text box, enter the port number of the remote server.
3. When completed, select **Enable remote log** and click **Save** to enable the setting.

Current Log



This column displays the system log in a chronological order. The system log is stored in the Network Camera's buffer area and will be overwritten when reaching a certain limit.

View Parameters Advanced Mode

The View Parameters page lists the entire system's parameters in alphabetical order. If you need technical assistance, please provide the information listed on this page.

Parameter List

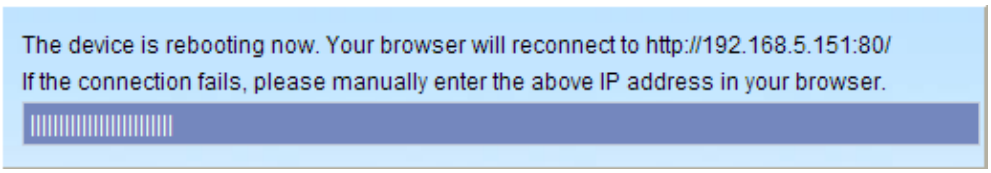
```
system_hostname='Mega-Pixel Network Camera'
system_ledoff='0'
system_lowlight='1'
system_date='2011/01/18'
system_time='14:33:58'
system_datetime='011814332011.54'
system_ntp=''
system_timezoneindex='320'
system_daylight_enable='0'
system_daylight_dstactualmode='1'
system_daylight_auto_begintime='NONE'
system_daylight_auto_endtime='NONE'
system_daylight_timezones=',-360,-320,-280,-240,-241,-200,-201,-1
system_privacy='0'
system_privacybuttonoff='0'
system_updateinterval='0'
system_info_modelname='IP8132'
system_info_extendedmodelname='IP8132'
system_info_serialnumber='0002D1125566'
system_info_firmwareversion='IP8132-VVTK-0100f'
system_info_language_count='9'
system_info_language_i0='English'
system_info_language_i1='Deutsch'
system_info_language_i2='Español'
system_info_language_i3='Français'
system_info_language_i4='Italiano'
system_info_language_i5='日本語'
system_info_language_i6='Português'
system_info_language_i7='简体中文'
system_info_language_i8='繁體中文'
system_info_language_i9=''
system_info_language_i10=''
system_info_language_i11=''
system_info_language_i12=''
system_info_language_i13=''
system_info_language_i14=''
```

Maintenance

This chapter explains how to restore the Network Camera to factory default, upgrade firmware version, etc.

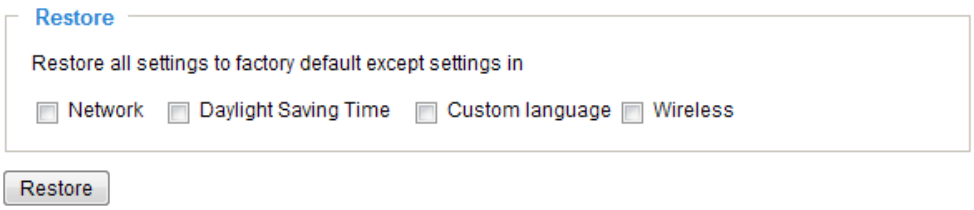
Reboot

This feature allows you to reboot the Network Camera, which takes about one minute to complete. When completed, the live video page will be displayed in your browser. The following message will be displayed during the reboot process.



If the connection fails after rebooting, manually enter the IP address of the Network Camera in the address field to resume the connection.

Restore



This feature allows you to restore the Network Camera to factory default settings.

Network Type: Select this option to retain the Network Type settings (please refer to Network Type on page 35).

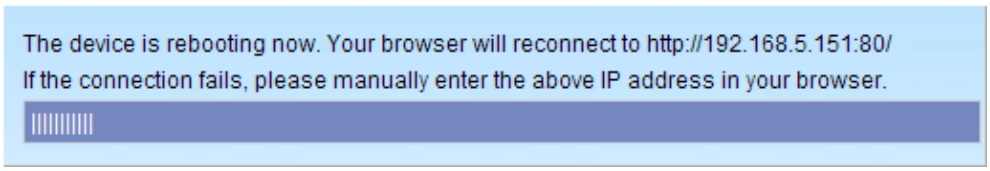
Daylight Saving Time: Select this option to retain the Daylight Saving Time settings (please refer to System on page 25)

Custom Language: Select this option to retain the Custom Language settings.

Wireless: Select this option to retain the settings related to wireless connection.

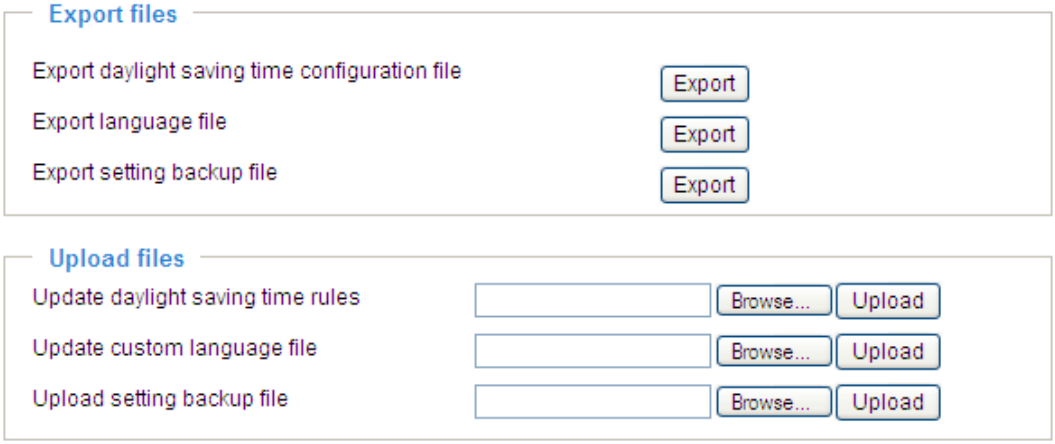
If none of the options is selected, all settings will be restored to factory default.

The following message is displayed during the restoring process.



Export / Upload Files Advanced Mode

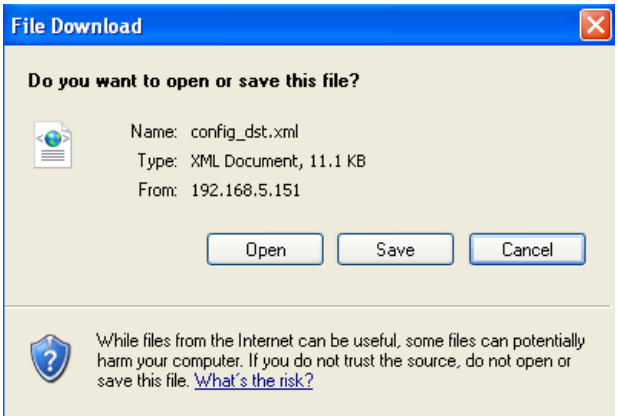
This feature allows you to Export / Upload daylight saving time rules, custom language files, and setting backup files.



Export daylight saving time configuration file: Click to set the start and end time of DST.

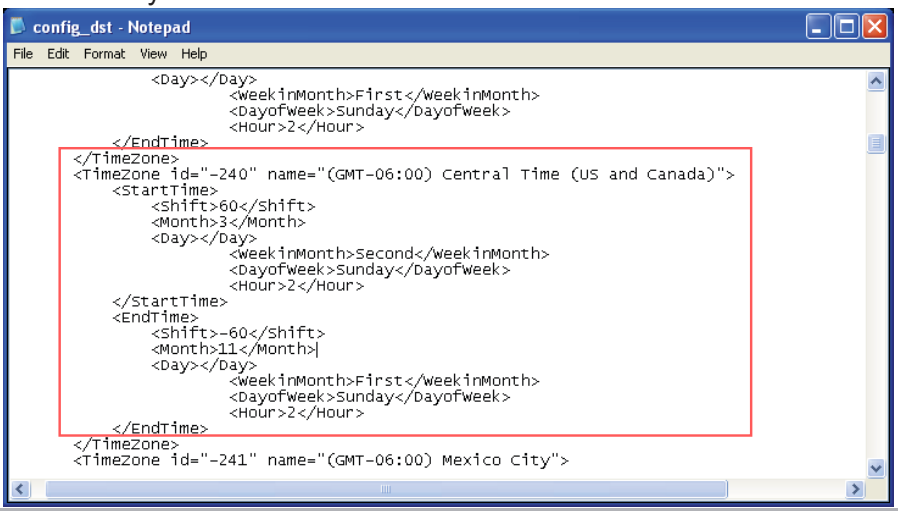
Follow the steps below to export:

1. In the Export files column, click **Export** to export the daylight saving time configuration file from the Network Camera.
2. A file download dialog will pop up as shown below. Click **Open** to review the XML file or click **Save** to store the file for editing.



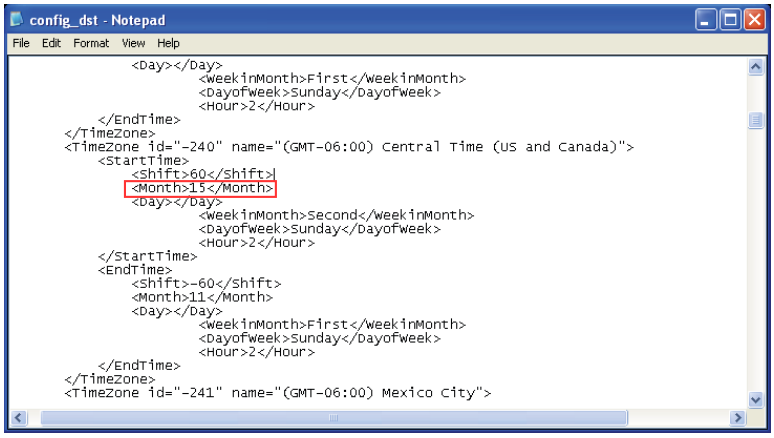
3. Open the file with Microsoft® Notepad and locate your time zone; set the start and end time of DST. When completed, save the file.

In the example below, DST begins each year at 2:00 a.m. on the second Sunday in March and ends at 2:00 a.m. on the first Sunday in November.

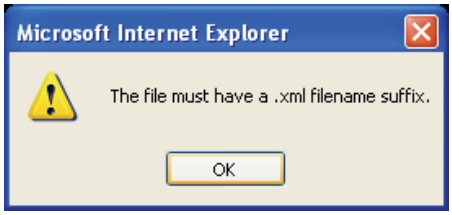


Upload daylight saving time rule: Click **Browse…** and specify the XML file to upload.

If the incorrect date and time are assigned, you will see the following warning message when uploading the file to the Network Camera.



The following message is displayed when attempting to upload an incorrect file format.



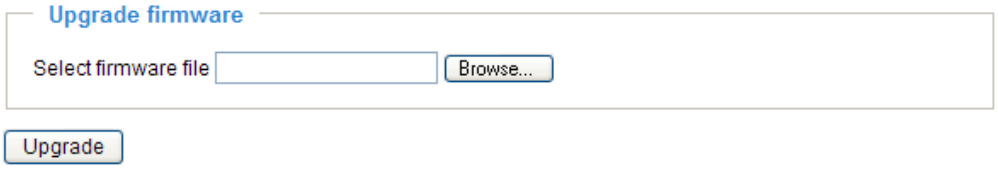
Export language file: Click to export language strings. VIVOTEK provides nine languages: English, Deutsch, Español, Français, Italiano, 日本語 , Português, 簡体中文 , and 繁體中文 .

Upload custom language file: Click **Browse…** and specify your own custom language file to upload.

Export setting backup file: Click to export all parameters for the device and user-defined scripts.

Upload setting backup file: Click **Browse…** to upload a setting backup file. Please note that the model and firmware version of the device should be the same as the setting backup file. If you have set up a fixed IP or other special settings for your device, it is not suggested to upload a settings backup file.

Upgrade Firmware



This feature allows you to upgrade the firmware of your Network Camera. It takes a few minutes to complete the process.
Note: Do not power off the Network Camera during the upgrade!

Follow the steps below to upgrade the firmware:
1. Download the latest firmware file from the VIVOTEK website. The file is in .pkg file format.
2. Click **Browse…** and specify the firmware file.
3. Click **Upgrade**. The Network Camera starts to upgrade and will reboot automatically when the upgrade completes.

If the upgrade is successful, you will see “Reboot system now!! This connection will close”. After that, re-access the Network Camera.

The following message is displayed when the upgrade has succeeded.

```
Reboot system now!!
This connection will close.
```

The following message is displayed when you have selected an incorrect firmware file.

```
Starting firmware upgrade...
Do not power down the server during the upgrade.
The server will restart automatically after the upgrade is
completed.
This will take about 1 - 5 minutes.
Wrong PKG file format
Unpack fail
```

Appendix

URL Commands for the Network Camera

1. Overview

For some customers who already have their own web site or web control application, the Network Camera/Video Server can be easily integrated through URL syntax. This section specifies the external HTTP-based application programming interface. The HTTP-based camera interface provides the functionality to request a single image, control camera functions (PTZ, output relay etc.), and get and set internal parameter values. The image and CGI-requests are handled by the built-in Web server.

2. Style Convention

In URL syntax and in descriptions of CGI parameters, text within angle brackets denotes content that is to be replaced with either a value or a string. When replacing the text string, the angle brackets should also be replaced. An example of this is the description of the name for the server, denoted with <servername> in the URL syntax description below, that is replaced with the string myserver in the URL syntax example further down in the page.

URL syntax is denoted with the word "Syntax:" written in bold face followed by a box with the referenced syntax as shown below. For example, name of the server is written as <servername> and is intended to be replaced with the name of the actual server. This can either be a name, e.g., "mywebcam" or "thecam.adomain.net" or the associated IP number for the server, e.g., 192.168.0.220.

Syntax:

```
http://<servername>/cgi-bin/viewer/video.jpg
```

Description of returned data is written with "**Return:**" in bold face followed by the returned data in a box. All data is returned in HTTP format, i.e., each line is separated with a Carriage Return and Line Feed (CRLF) printed as \r\n.

Return:

```
HTTP/1.0 <HTTP code> <HTTP text>\r\n
```

URL syntax examples are written with "**Example:**" in bold face followed by a short description and a light grey box with the example.

Example: request a single snapshot image

```
http://mywebserver/cgi-bin/viewer/video.jpg
```

3. General CGI URL Syntax and Parameters

When the CGI request includes internal camera parameters, these parameters must be written exactly as they are named in the camera or video server. The CGIs are organized in functionally-related directories under the cgi-bin directory. The file extension .cgi is required.

Syntax:

http://<*servername*>/cgi-bin/<*subdir*>[/<*subdir*>...]/<*cgi*>.<*ext*>
[?<parameter>=<value>[&<parameter>=<value>...]]

Example: Set digital output #0 to active

http://mywebserver/cgi-bin/dido/setdo.cgi?do0=1

4. Security Level

SECURITY LEVEL	SUB-DIRECTORY	DESCRIPTION
0	anonymous	Unprotected.
1 [view]	anonymous, viewer, dido, camctrl	1. Can view, listen, talk to camera. 2. Can control DI/DO, PTZ of the camera.
4 [operator]	anonymous, viewer, dido, camctrl, operator	Operator access rights can modify most of the camera's parameters except some privileges and network options.
6 [admin]	anonymous, viewer, dido, camctrl, operator, admin	Administrator access rights can fully control the camera's operations.
7	N/A	Internal parameters. Unable to be changed by any external interfaces.

5. Get Server Parameter Values

Note: The access right depends on the URL directory.
Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/anonymous/getparam.cgi?[<*parameter*>]
[&<parameter>…]

http://<*servername*>/cgi-bin/viewer/getparam.cgi?[<*parameter*>]
[&<parameter>…]

http://<*servername*>/cgi-bin/operator/getparam.cgi?[<*parameter*>]
[&<parameter>…]

http://<*servername*>/cgi-bin/admin/getparam.cgi?[<*parameter*>]
[&<parameter>…]

Where the <*parameter*> should be <*group*>[_<*name*>]. If you do not specify any parameters, all the parameters on the server will be returned. If you specify only <*group*>, the parameters of the related group will be returned.

When querying parameter values, the current parameter values are returned.
A successful control request returns parameter pairs as follows:
Return:

HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: <length>\r\n
\r\n
<parameter pair>

where <parameter pair> is
<parameter>=<value>\r\n
[<parameter pair>]

<length> is the actual length of content.

Example: Request IP address and its response

Request:
http://192.168.0.123/cgi-bin/admin/getparam.cgi?network_ipaddress

```
Response:
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: 33\r\n
\r\n
network_ipaddress=192.168.0.123\r\n
```

6. Set Server Parameter Values

Note: The access right depends on the URL directory.
Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/anonymous/setparam.cgi? <*parameter*>=<*value*>
[&<parameter>=<value>…][&return=<return page>]

http://<*servername*>/cgi-bin/viewer/setparam.cgi? <*parameter*>=<*value*>
[&<parameter>=<value>…][&return=<return page>]

http://<*servername*>/cgi-bin/operator/setparam.cgi? <*parameter*>=<*value*>
[&<parameter>=<value>…][&return=<return page>]

http://<*servername*>/cgi-bin/admin/setparam.cgi? <*parameter*>=<*value*>
[&<parameter>=<value>…][&return=<return page>]

PARAMETER	VALUE	DESCRIPTION
<group>_<name>	value to assigned	Assign <*value*> to the parameter <*group*>_<*name*>.
return	<return page>	Redirect to the page <*return page*> after the parameter is assigned. The <*return page*> can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page. (Note: The return page can be a general HTML file (.htm, .html). It cannot be a CGI command or have any extra parameters. This parameter must be placed at the end of the parameter list

Return:

HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: <length>\r\n
\r\n
<parameter pair>

where <parameter pair> is
<parameter>=<value>\r\n
[<parameter pair>]
Only the parameters that you set and are readable will be returned.

Example: Set the IP address of server to 192.168.0.123:

Request:
http://myserver/cgi-bin/admin/setparam.cgi?network_ipaddress=192.168.0.123

Response:
HTTP/1.0 200 OK\r\n
Content-Type: text/html\r\n
Context-Length: 33\r\n
\r\n
network_ipaddress=192.168.0.123\r\n

7. Available parameters on the server

This chapter defines all the parameters which can be configured or retrieved from VIVOTEK network camera or video server. The general format of description is listed in the table below
Valid values:

VALID VALUES	DESCRIPTION
string[<n>]	Text strings shorter than 'n' characters. The characters ",', <,>,& are invalid.
string[n~m]	Text strings longer than `n' characters and shorter than `m' characters. The characters ",', <,>,& are invalid.
password[<n>]	The same as string but displays '*' instead.
integer	Any number between $(-2^{31} - 1)$ and $(2^{31} - 1)$.
positive integer	Any number between 0 and $(2^{32} - 1)$.
<m> ~ <n>	Any number between 'm' and 'n'.
domain name[<n>]	A string limited to a domain name shorter than 'n' characters (eg. www.ibm.com).
email address [<n>]	A string limited to an email address shorter than 'n' characters (eg. joe@www.ibm.com).
ip address	A string limited to an IP address (eg. 192.168.1.1).
mac address	A string limited to contain a MAC address without hyphens or colons.
boolean	A boolean value of 1 or 0 represents [Yes or No], [True or False], [Enable or Disable].
<value1>, <value2>, <value3>, …	Enumeration. Only given values are valid.
blank	A blank string.
everything inside <>	A description
integer primary key	SQLite data type. A 32-bit signed integer. The value is assigned a unique integer by the server.
text	SQLite data type. The value is a text string, stored using the database encoding (UTF-8, UTF-16BE or UTF-16-LE).
coordinate	x, y coordinate (eg. 0,0)
window size	window width and height (eg. 800x600)

NOTE: The camera should not be restarted when parameters are changed.

7.1 System

Group: **system**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
hostname	string[40]	1/6	Host name of server (Network Camera, Wireless Network Camera, Video Server, Wireless Video Server).
ledoff	<boolean>	6/6	Turn on (0) or turn off (1) all led indicators.
date	<YYYY/MM/DD>, keep, auto	6/6	Current date of system. Set to 'keep' to keep date unchanged. Set to 'auto' to use NTP to synchronize date.
time	<hh:mm:ss>, keep, auto	6/6	Current time of the system. Set to 'keep' to keep time unchanged. Set to 'auto' to use NTP to synchronize time.
datetime	<MMDDhhmmYYYY.ss>	6/6	Another current time format of the system.
ntp	<domain name>, <ip address>, <blank>	6/6	NTP server. *Do not use "skip to invoke default server" for default value.
timezoneindex	-489 ~ 529	6/6	Indicate timezone and area. -480: GMT-12:00 Eniwetok, Kwajalein -440: GMT-11:00 Midway Island, Samoa -400: GMT-10:00 Hawaii -360: GMT-09:00 Alaska -320: GMT-08:00 Las Vegas, San_Francisco, Vancouver -280: GMT-07:00 Mountain Time, Denver -281: GMT-07:00 Arizona -240: GMT-06:00 Central America, Central Time, Mexico City, Saskatchewan -200: GMT-05:00 Eastern Time, New York, Toronto -201: GMT-05:00 Bogota, Lima, Quito, Indiana -180: GMT-04:30 Caracas -160: GMT-04:00 Atlantic Time, Canada,

			La Paz, Santiago -140: GMT-03:30 Newfoundland -120: GMT-03:00 Brasilia, Buenos Aires, Georgetown, Greenland -80: GMT-02:00 Mid-Atlantic -40: GMT-01:00 Azores, Cape_Verde_IS. 0: GMT Casablanca, Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London 40: GMT 01:00 Amsterdam, Berlin, Rome, Stockholm, Vienna, Madrid, Paris 41: GMT 01:00 Warsaw, Budapest, Bern 80: GMT 02:00 Athens, Helsinki, Istanbul, Riga 81: GMT 02:00 Cairo 82: GMT 02:00 Lebanon, Minsk 83: GMT 02:00 Israel 120: GMT 03:00 Baghdad, Kuwait, Riyadh, Moscow, St. Petersburg, Nairobi 121: GMT 03:00 Iraq 140: GMT 03:30 Tehran 160: GMT 04:00 Abu Dhabi, Muscat, Baku, Tbilisi, Yerevan 180: GMT 04:30 Kabul 200: GMT 05:00 Ekaterinburg, Islamabad, Karachi, Tashkent 220: GMT 05:30 Calcutta, Chennai, Mumbai, New Delhi 230: GMT 05:45 Kathmandu 240: GMT 06:00 Almaty, Novosibirsk, Astana, Dhaka, Sri Jayawardenepura 260: GMT 06:30 Rangoon 280: GMT 07:00 Bangkok, Hanoi, Jakarta, Krasnoyarsk 320: GMT 08:00 Beijing, Chongging, Hong Kong, Kuala Lumpur, Singapore, Taipei 360: GMT 09:00 Osaka, Sapporo, Tokyo, Seoul, Yakutsk 380: GMT 09:30 Adelaide, Darwin 400: GMT 10:00 Brisbane, Canberra,

			Melbourne, Sydney, Guam, Vladivostok 440: GMT 11:00 Magadan, Solomon Is., New Caledonia 480: GMT 12:00 Aucklan, Wellington, Fiji, Kamchatka, Marshall Is. 520: GMT 13:00 Nuku'Alofa
daylight_enable	<boolean>	6/6	Enable automatic daylight saving time in time zone.
daylight_dstactualmode	<boolean>	6/7	Check if current time is under daylight saving time. (Used internally)
daylight_auto_begintime	string[19]	6/7	Display the current daylight saving start time.
daylight_auto_endtime	string[19]	6/7	Display the current daylight saving end time.
daylight_timezones	string	6/6	List time zone index which support daylight saving time.
privacy	<boolean>	6/6	Represent privacy button status
privacybuttonoff	<boolean>	6/6	0: enable privacy button function 1: disable privacy button function
updateinterval	0, 3600, 86400, 604800, 2592000	6/6	0 to Disable automatic time adjustment, otherwise, it indicates the seconds between NTP automatic update intervals.
restore	0, <positive integer>	7/6	Restore the system parameters to default values after <value> seconds.
reset	0, <positive integer>	7/6	Restart the server after <value> seconds if <value> is non-negative.
restoreexceptnet	<Any value>	7/6	Restore the system parameters to default values except (ipaddress, subnet, router, dns1, dns2, pppoe). This command can cooperate with other “restoreexceptXYZ” commands. When cooperating with others, the system parameters will be restored to the default value except for a union of the combined results.
restoreexceptdst	<Any value>	7/6	Restore the system parameters to default values except all daylight saving time

			settings. This command can cooperate with other "restoreexceptXYZ" commands. When cooperating with others, the system parameters will be restored to default values except for a union of combined results.
restoreexceptlang	<Any Value>	7/6	Restore the system parameters to default values except the custom language file the user has uploaded. This command can cooperate with other "restoreexceptXYZ" commands. When cooperating with others, the system parameters will be restored to the default value except for a union of the combined results.
restoreexceptwireless	<Any Value>	7/6	Restore the system parameters to default values except wireless settings. This command can cooperate with other "restoreexceptXYZ" commands. When cooperating with others, the system parameters will be restored to default values except for a union of combined results. (capability_network_wireless=1)

7.1.1 system.info

Subgroup of **system**: **info** (The fields in this group are unchangeable.)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
modelname	string[40]	0/7	Internal model name of the server (eg. IP7139)
extendedmodelname	string[40]	0/7	ODM specific model name of server (eg. DCS-5610). If it is not an ODM model, this field will be equal to "modelname"
serialnumber	<mac address>	0/7	12 characters MAC address (without hyphens).
firmwareversion	string[40]	0/7	Firmware version, including model, company, and version number in the format: <MODEL-BRAND-VERSION>

language_count	<integer>	0/7	Number of webpage languages available on the server.
language_i<0~(count-1)>	string[16]	0/7	Available language lists.
customlanguage_maxcount	<integer>	0/6	Maximum number of custom languages supported on the server.
customlanguage_count	<integer>	0/6	Number of custom languages which have been uploaded to the server.
customlanguage_i<0~(maxcount-1)>	string	0/6	Custom language name.

7.2 Status

Group: **status**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
di_i<0~(ndi-1)> <product dependent>	<boolean>	1/7	0 => Inactive, normal 1 => Active, triggered (capability.ndi > 0)
do_i<0~(ndo-1)> <product dependent>	<boolean>	1/7	0 => Inactive, normal 1 => Active, triggered (capability.ndo > 0)
wled_i<0~(nwled-1)> <product dependent>	<boolean>	1/7	0 => Inactive, normal 1 => Active, triggered (capability.nwled > 0)
vi_i<0~(nvi-1)> <product dependent>	<boolean>	1/7	Virtual input 0 => Inactive 1 => Active (capability.nvi > 0)
onlinenum_rtsp	<integer>	6/7	Current number of RTSP connections.
onlinenum_httppush	<integer>	6/7	Current number of HTTP push server connections.
onlinenum_sip	<integer>	6/7	Current number of SIP connections.
eth_i0	<string>	1/7	Get network information from mii-tool.

7.3 Digital input behavior define

Group: **di_i<0~(ndi-1)>** (capability.ndi > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
normalstate	high, low	1/1	Indicates open circuit or closed circuit (inactive status)

7.4 Digital output behavior define

Group: **do_i<0~(ndo-1)>** (capability.ndo > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
normalstate	open, grounded	1/1	Indicate open circuit or closed circuit (inactive status)

7.5 Security

Group: **security**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
privilege_do <product dependent>	view, operator, admin	6/6	Indicate which privileges and above can control digital output (capability.ndo > 0)
privilege_wled <product dependent>	view, operator, admin	6/6	Indicate which privileges and above can control white light LED (capability.nwled > 0)
user_i0_name	string[64]	6/7	User name of root
user_i<1~20>_name	string[64]	6/7	User name
user_i0_pass	password[64]	6/6	Root password
user_i<1~20>_pass	password[64]	7/6	User password
user_i0_privilege	view, operator, admin	6/7	Root privilege
user_i<1~20>_ privilege	view, operator, admin	6/6	User privilege

7.6 Network

Group: **network**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
preprocess	<positive integer>	7/6	An 32-bit integer, each bit can be set separately as follows: Bit 0 => HTTP service; Bit 1=> HTTPS service; Bit 2=> FTP service; Bit 3 => Two way audio and RTSP Streaming service; To stop service before changing its port settings. It's **recommended** to set this parameter when change a service port to the port occupied by another service currently. Otherwise, the service may fail. Stopped service will auto-start after changing port settings. Ex: Change HTTP port from 80 to 5556, and change RTP port for video from 5556 to 20480. Then, set preprocess=9 to stop both service first. "/cgi-bin/admin/setparam.cgi? network_preprocess=9&network_http_port=5556& network_rtp_videoport=20480"
type	lan, pppoe <product dependent>	6/6	Network connection type.
resetip	<boolean>	6/6	1 => Get ipaddress, subnet, router, dns1, dns2 from DHCP server at next reboot. 0 => Use preset ipaddress, subnet, rounter, dns1, and dns2.
ipaddress	<ip address>	6/6	IP address of server.
subnet	<ip address>	6/6	Subnet mask.
router	<ip address>	6/6	Default gateway.
dns1	<ip address>	6/6	Primary DNS server.
dns2	<ip address>	6/6	Secondary DNS server.
wins1	<ip address>	6/6	Primary WINS server.
wins2	<ip address>	6/6	Secondary WINS server.

7.6.1 802.1x

Subgroup of **network: ieee8021x** (capability.protocol.ieee8021x > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable/disable IEEE 802.1x
eapmethod	eap-peap, eap-tls	6/6	Selected EAP method
identity_peap	String[64]	6/6	PEAP identity
identity_tls	String[64]	6/6	TLS identity
password	String[254]	6/6	Password for TLS
privatekeypassword	String[254]	6/6	Password for PEAP
ca_exist	<boolean>	6/6	CA installed flag
ca_time	<integer>	6/7	CA installed time. Represented in EPOCH
ca_size	<integer>	6/7	CA file size (in bytes)
certificate_exist	<boolean>	6/6	Certificate installed flag (for TLS)
certificate_time	<integer>	6/7	Certificate installed time. Represented in EPOCH
certificate_size	<integer>	6/7	Certificate file size (in bytes)
privatekey_exist	<boolean>	6/6	Private key installed flag (for TLS)
privatekey_time	<integer>	6/7	Private key installed time. Represented in EPOCH
privatekey_size	<integer>	6/7	Private key file size (in bytes)

7.6.2 QOS

Subgroup of **network: qos_cos** (capability.protocol.qos.cos > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable/disable CoS (IEEE 802.1p)
vlanid	1~4095	6/6	VLAN ID
video	0~7	6/6	Video channel for CoS
audio <product dependent>	0~7	6/6	Audio channel for CoS (capability.naudio > 0)
eventalarm	0~7	6/6	Event/alarm channel for CoS
management	0~7	6/6	Management channel for CoS
eventtunnel	0~7	6/6	Event/Control channel for CoS

Subgroup of **network: qos_dscp** (capability.protocol.qos.dscp > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable/disable DSCP

video	0~63	6/6	Video channel for DSCP
audio <product dependent>	0~63	6/6	Audio channel for DSCP (capability.naudio > 0)
eventalarm	0~63	6/6	Event/alarm channel for DSCP
management	0~63	6/6	Management channel for DSCP
eventtunnel	0~63	6/6	Event/Control channel for DSCP

7.6.3 IPV6

Subgroup of **network**: **ipv6** (capability.protocol.ipv6 > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable IPv6.
addonipaddress	<ip address>	6/6	IPv6 IP address.
addonprefixlen	0~128	6/6	IPv6 prefix length.
addonrouter	<ip address>	6/6	IPv6 router address.
addondns	<ip address>	6/6	IPv6 DNS address.
allowoptional	<boolean>	6/6	Allow manually setup of IP address setting.

7.6.4 FTP

Subgroup of **network**: **ftp**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
port	21, 1025~65535	6/6	Local ftp server port.

7.6.5 HTTP

Subgroup of **network**: **http**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
port	80, 1025 ~ 65535	6/6	HTTP port.
alternateport	1025~65535	6/6	Alternate HTTP port.
authmode	basic, digest	1/6	HTTP authentication mode.
s0_accessname	string[32]	1/6	HTTP server push access name for stream 1. (capability.protocol.spush_mjpeg =1 and capability.nmediastream > 0)
s1_accessname <product dependent>	string[32]	1/6	HTTP server push access name for stream 2. (capability.protocol.spush_mjpeg =1 and capability.nmediastream > 1)
s2_accessname	string[32]	1/6	Http server push access name for stream 3

<product dependent>			(capability.protocol.spush_mjpeg =1 and capability.nmediastream > 2)
anonymousviewing	<boolean>	1/6	Enable anoymous streaming viewing.

7.6.6 HTTPS port

Subgroup of **network**: **https** (capability.protocol.https > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
port	443, 1025 ~ 65535	6/6	HTTPS port.

7.6.7 RTSP

Subgroup of **network**: **rtsp** (capability.protocol.rtsp > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
port	554, 1025 ~ 65535	1/6	RTSP port. (capability.protocol.rtsp=1)
anonymousviewing	<boolean>	1/6	Enable anoymous streaming viewing.
authmode	disable, basic, digest	1/6	RTSP authentication mode. (capability.protocol.rtsp=1)
s0_accessname	string[32]	1/6	RTSP access name for stream1. (capability.protocol.rtsp=1 and capability.nmediastream > 0)
s1_accessname <product dependent>	string[32]	1/6	RTSP access name for stream2. (capability.protocol.rtsp=1 and capability.nmediastream > 1)
s2_accessname <product dependent>	string[32]	1/6	RTSP access name for stream3 (capability.protocol.rtsp=1 and capability.nmediastream > 2)

7.6.7.1 RTSP multicast

Subgroup of **network_rtsp_s<0~(n-1)>**: **multicast,** n is stream count

(capability.protocol.rtp.multicast > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
alwaysmulticast	<boolean>	4/4	Enable always multicast.
audiotrack	-1, 0	6/6	Select the audio stream for streaming. -1: no audio 0: audio stream 0

ipaddress	<ip address>	4/4	Multicast IP address.
videoport	1025 ~ 65535	4/4	Multicast video port.
audioport	1025 ~ 65535	4/4	Multicast audio port. (capability.naudio > 0)
ttl	1 ~ 255	4/4	Mutlicast time to live value.

7.6.8 SIP port

Subgroup of **network**: **sip** (capability.protocol.sip> 0)

NAME	VALUE	DEFAULT	SECURITY (get/set)	DESCRIPTION
port	1025 ~ 65535	5060	1/6	SIP port.

7.6.9 RTP port

Subgroup of **network**: **rtp**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
videoport	1025 ~ 65535	6/6	Video channel port for RTP. (capability.protocol.rtp_unicast=1)
audioport	1025 ~ 65535	6/6	Audio channel port for RTP. (capability.protocol.rtp_unicast=1)

7.6.10 PPPoE

Subgroup of **network**: **pppoe** (capability.protocol.pppoe > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
user	string[128]	6/6	PPPoE account user name.
pass	password[64]	6/6	PPPoE account password.

7.7 Wireless

Group: **wireless** (capability.network.wireless > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
ssid	string[32]	6/6	SSID for wireless lan settings. The valid characters are [A-Z] [a-z] [0-9] [/] [.] [_] [=] [ ] [-] [+] [*].
wlmode	Infra, Adhoc	6/6	Wireless mode. Infra: Infrastructure Adhoc: Ad hoc
channel	1~11 or	6/6	USA and Canada

	1 ~ 13 or 10~11 or 10~13 or 1~14		Europe Spain France All
txrate	NONE, 1M, 2M, 5.5M, 11M, 6M, 9M, 12M, 18M, 24M, 36M, 48M, 54M, Auto	6/6	Maximum transmit rate in Mbps.
encrypt	0~3	6/6	Encryption method: 0=> NONE, 1 => WEP, 2 => WPA, 3 => WPA2PSK <product dependent>
authmode	OPEN, SHARED	6/6	Authentication mode.
keylength	64, 128	6/6	Key length in bits.
keyformat	HEX, ASCII	6/6	Key1 ~ key4 presentation format.
keyselect	1 ~ 4	6/6	Default key number.
key1	password [32]	6/6	WEP key1 for encryption. The valid characters are [A-Z] [a-z] [0-9].
key2	password [32]	6/6	WEP key2 for encryption. The valid characters are [A-Z] [a-z] [0-9].
key3	password [32]	6/6	WEP key3 for encryption. The valid characters are [A-Z] [a-z] [0-9].
key4	password [32]	6/6	WEP key4 for encryption. The valid characters are [A-Z] [a-z] [0-9].
Domain	‘U’ for USA ‘C’ for Canada ‘E’ for Euro ‘S’ for Spain ‘F’ for France ‘I’ for Isrel ‘A’ for All	6/7	Wireless domain.
algorithm	AES, TKIP	6/6	Algorithm
presharedkey	password [63]	6/6	WPA mode pre-shared key. The valid characters are [A-Z] [a-z] [0-9].

7.8 IP Filter

Group: **ipfilter**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable access list filtering.
admin_enable	<boolean>	6/6	Enable administrator IP address.
admin_ip	String[39]	6/6	Administrator IP address.
maxconnection	1~10	6/6	Maximum number of concurrent streaming connection(s).
type	0, 1	6/6	Ipfilter policy : 0 => allow 1 => deny
ipv4list_i<0~9>	Single address: <ip address> Network address: <ip address / network mask> Range address:<start ip address - end ip address>	6/6	IPv4 address list.
Ipv6list_i<0~9>	String[44]	6/6	IPv6 address list.

7.9 Video input

Group: **videoin**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
cmosfreq	50, 60	4/4	CMOS frequency. (capability.videoin.type=2)
whitebalance	auto, manual	4/4	“auto” indicates auto white balance. “manual” indicates keep current value.
atwbvalue1	0~9999999999	4/4	Auto white balance value
atwbvalue2	0~9999999999	4/4	Auto white balance value
exposurelevel	1~8	4/4	Exposure level
enableblc	<boolean>	4/4	Enable backlight compensation.
privacystatus	<boolean>	4/4	Same as privacy button status 0: normal streaming 1: blue frame streaming
agc	0,1,2,3	4/4	Set auto gain control to normal level, middle or MAX level. 0->2X 1->4X

			2->8X 3->16X

7.9.1 video input setting per channel

Group: **videoin_c<0~(n-1)>** for n channel products, and m is stream number

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
cmosfreq	50, 60	4/4	CMOS frequency. (capability.videoin.type=2)
whitebalance	auto, manual	4/4	"auto" indicates auto white balance. "manual" indicates keep current value.
atwbvalue1	0~9999999999	4/4	Auto white balance value
atwbvalue2	0~9999999999	4/4	Auto white balance value
exposurelevel	1~8	4/4	Exposure level
enableblc	<boolean>	4/4	Enable backlight compensation.
agc	0,1,2,3	4/4	Set auto gain control to normal level, middle or MAX level. 0->2X 1->4X 2->8X 3->16X
color	0, 1	4/4	0 =>monochrome 1 => color
flip	<boolean>	4/4	Flip the image.
mirror	<boolean>	4/4	Mirror the image.
ptzstatus	<integer>	1/7	A 32-bit integer, each bit can be set separately as follows: Bit 0 => Support camera control function; 0(not support), 1(support) Bit 1 => **Built-in** or **external** camera; 0 (external), 1(built-in) Bit 2 => Support **pan** operation; 0(not support), 1(support) Bit 3 => Support **tilt** operation; 0(not support), 1(support) Bit 4 => Support **zoom** operation; 0(not support), 1(support) Bit 5 => Support **focus** operation; 0(not support), 1(support)
text	string[16]	1/4	Enclose caption.

imprinttimestamp	<boolean>	4/4	Overlay time stamp on video.
maxexposure	15~30	4/4	Maximum exposure time.
privacystatus	<boolean>	4/4	Same as privacy button status 0: normal streaming 1: blue frame streaming
enablepreview	<boolean>	1/4	Enable preview
s<0~(m-1)>_codectype	mpeg4, mjpeg, h264	1/4	Video codec type. Stream0 does not support mpeg4
s<0~(m-1)>_resolution	176x144 ~ 1280x800	1/4	Video resolution in pixels.
s<0~(m-1)>_mpeg4_intra period	250, 500, 1000, 2000, 3000, 4000	4/4	Intra frame period in milliseconds.
s<0~(m-1)>_mpeg4_rate controlmode	cbr, vbr	4/4	cbr, constant bitrate vbr, fix quality
s<0~(m-1)>_mpeg4_qua nt	0, 1~5 99, 100	4/4	Quality of video when choosing vbr in "ratecontrolmode". 0,99,100 is the customized manual input setting. 1 = worst quality, 5 = best quality.
s<0~(m-1)>_mpeg4 _qvalue	1~31	4/4	Manual video quality level input. (s<0~(m-1)>_mpeg4 _quant = 0 or 99)
s<0~(m-1)>_mpeg4 _qpercent	1~100	4/4	Using percentage to represent manual video quality level input. (s<0~(m-1)>_mpeg4_quant = 100)
s<0~(m-1)>_mpeg4_bitra te	1000~8000000	4/4	Set bit rate in bps when choosing cbr in "ratecontrolmode".
s<0~(m-1)>_mpeg4_max frame	1~25, 26~30 (only for NTSC or 60Hz CMOS)	1/4	Set maximum frame rate in fps (for mpeg4).
s<0~(m-1)>_h264_intrap eriod	250, 500, 1000, 2000, 3000, 4000	4/4	Intra frame period in milliseconds.
s<0~(m-1)>_h264_rateco ntrolmode	cbr, vbr	4/4	cbr, constant bitrate vbr, fix quality
s<0~(m-1)>_h264_quant	0,1~5,99,100	4/4	Quality of video when choosing vbr in "ratecontrolmode". 0, 99, 100 is the customized manual input

			setting. 1 = worst quality, 5 = best quality.
s<0~(m-1)>_h264_qvalue	0~51	4/4	Manual video quality level input. (s<0~(m-1)>_h264_quant = 0 or 99)
s<0~(m-1)>_h264_qpercent	1~100	4/4	Using percentage to represent manual video quality level input. (s<0~(m-1)>_h264_quant = 100)
s<0~(m-1)>_h264_bitrate	1000~8000000	4/4	Set bit rate in bps when choosing cbr in "ratecontrolmode".
s<0~(m-1)>_h264_maxframe	1~25, 26~30 (only for NTSC or 60Hz CMOS)	1/4	Set maximum frame rate in fps (for h264).
s<0~(m-1)>_h264_profile	0~2	1/4	Indicate H264 profiles 0: baseline 1: main profile 2: high profile
s<0~(m-1)>_mjpeg_quant	0, 1 ~ 5 99, 100	4/4	Quality of JPEG video. 0, 99, 100 is the customized manual input setting. 1 = worst quality, 5 = best quality.
s<0~(m-1)>_mjpeg_qvalue	0~200	4/4	Manual video quality level input. (s<0~(m-1)>_mjpeg_quant = 0 or 99 or 100)
s<0~(m-1)>_mjpeg_qpercent	1~100	4/4	Using percentage to represent manual video quality level input. (s<0~(m-1)>_mjpeg_quant = 0 or 99 or 100)
s<0~(m-1)>_mjpeg_maxframe	1~25, 26~30 (only for NTSC or 60Hz CMOS)	1/4	Set maximum frame rate in fps (for JPEG).
s<0~(m-1)>_forcei	1	7/6	Force I frame.

7.9.1.1 Alternative video input profiles per channel

In addition to the primary setting of video input, there can be alternative profile video input setting for each channel which might be for different scene of light (daytime or nighttime).

Group: **videoin_ c<0~(n-1)>_profile_i<0~(m-1)>** (capability. nvideoinprofile > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
Enable	<boolean>	4/4	Enable/disable this profile setting
Policy	schedule	4/4	The mode which the profile is applied to.
begintime	hh:mm	4/4	Begin time of schedule mode.
endtime	hh:mm	4/4	End time of schedule mode.
maxexposure	15~30	4/4	Maximum exposure time.
enableblc	<boolean>	4/4	Enable backlight compensation.
exposurelevel	1~8	4/4	Exposure level
agc	0,1,2,3	4/4	Set auto gain control to normal level, middle or MAX level. 0->2X 1->4X 2->8X 3->16X

7.10 Video input preview

The temporary settings for video preview

Group: **videoinpreview**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
maxexposure	15~30	4/4	Maximum exposure time
exposurelevel	1~8	4/4	Preview of exposure level
enableblc	<boolean>	4/4	Preview of enable backlight compensation.
agc	0,1,2,3	4/4	Preview of set auto gain control to normal level or MAX level. 0->2X 1->4X 2->8X 3->16X

7.11 Image setting per channel

Group: **image_c<0~(n-1)>** for n channel products

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
brightness	-5 ~ 5	4/4	Adjust brightness of image according to mode settings.
saturation	-5 ~ 5	4/4	Adjust saturation of image according to mode settings.
Contrast	-5 ~ 5	4/4	Adjust contrast of image according to mode settings.
sharpness	-3 ~ 3	4/4	Adjust sharpness of image according to mode settings.
IBPE_nrenable	<boolean>	4/4	Enable noise reduction.
IBPE_nrmode	1 ~ 3	4/4	Adjust noise reduction mode. 1 => DeGaussian 2 => DeImpulse 3 => DeGaussian + DeImpulse
IBPE_nrstrength	1 ~ 63	4/4	Adjust noise reduction strength. 1 is minimum and 63 is maximum.

7.12 Image setting for preview

Group: **imagepreview_c<0~(n-1)>** for n channel products

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
brightness	-5 ~ 5	4/4	Preview of brightness adjustment of image according to mode settings.
saturation	-5 ~ 5	4/4	Preview of saturation adjustment of image according to mode settings.
Contrast	-5 ~ 5	4/4	Preview of contrast adjustment of image according to mode settings.
sharpness	-3 ~ 3	4/4	Preview of sharpness adjustment of image according to mode settings.
IBPE_nrenable	<boolean>	4/4	Preview of adjusting enabling noise reduction.
IBPE_nrmode	1 ~ 3	4/4	Preview of adjusting noise reduction mode. 1 => DeGaussian 2 => DeImpulse 3 => DeGaussian + DeImpulse
IBPE_nrstrength	1 ~ 63	4/4	Preview of adjusting noise reduction strength. 1 is minimum and 63 is maximum.

Group: **imagepreview**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
videoin_whitebalance	auto, manual	4/4	Preview of adjusting white balance of image according to mode settings
videoin_restoreatwb	0, 1~	4/4	Restore of adjusting white balance of image according to mode settings

7.13 Audio input per channel

Group: **audioin_c<0~(n-1)>** for n channel products (capability.audioin>0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
mute	0, 1	1/4	Enable audio mute.
gain	1~100	4/4	Gain of input.
s<0~(m-1)>_codectype	gamr, g711	4/4	Set audio codec type for input.
s<0~(m-1)>_gamr_bitrate	4750, 5150, 5900, 6700, 7400, 7950, 10200, 12200	4/4	Set AMR bitrate in bps.
s<0~(m-1)>_g711_mode	pcmu, pcma	4/4	Set G.711 mode.

7.14 Audio output per channel

Group: **audioout_c<0~(n-1)>** for n channel products (capability.audioout>0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
gainpercentage	1~100	4/4	Gain of output.

7.15 Motion detection settings

Group: **motion_c<0~(n-1)>** for n channel product

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	4/4	Enable motion detection.
win_i<0~2>_enable	<boolean>	4/4	Enable motion window 1~3.
win_i<0~2>_name	string[14]	4/4	Name of motion window 1~3.
win_i<0~2>_left	0 ~ 320	4/4	Left coordinate of window position.

win_i<0~2>_top	0 ~ 240	4/4	Top coordinate of window position.
win_i<0~2>_width	0 ~ 320	4/4	Width of motion detection window.
win_i<0~2>_height	0 ~ 240	4/4	Height of motion detection window.
win_i<0~2>_objsize	0 ~ 100	4/4	Percent of motion detection window.
win_i<0~2>_sensitivity	0 ~ 100	4/4	Sensitivity of motion detection window.

Group: **motion_c<0~(n-1)> profile** for m profile and n channel product (capability.nmotionprofile > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
i<0~(m-1)>_enable	<boolean>	4/4	Enable profile 1 ~ (m-1).
i<0~(m-1)>_policy	schedule	4/4	The mode which the profile is applied to.
i<0~(m-1)>_begintime	hh:mm	4/4	Begin time of schedule mode.
i<0~(m-1)>_endtime	hh:mm	4/4	End time of schedule mode.
i<0~(m-1)>_win_i<0~2>_enable	<boolean>	4/4	Enable motion window.
i<0~(m-1)>_win_i<0~2>_name	string[14]	4/4	Name of motion window.
i<0~(m-1)>_win_i<0~2>_left	0 ~ 320	4/4	Left coordinate of window position.
i<0~(m-1)>_win_i<0~2>_top	0 ~ 240	4/4	Top coordinate of window position.
i<0~(m-1)>_win_i<0~2>_width	0 ~ 320	4/4	Width of motion detection window.
i<0~(m-1)>_win_i<0~2>_height	0 ~ 240	4/4	Height of motion detection window.
i<0~(m-1)>_win_i<0~2>_objsize	0 ~ 100	4/4	Percent of motion detection window.
i<0~(m-1)>_win_i<0~2>_sensitivity	0 ~ 100	4/4	Sensitivity of motion detection window.

7.16 Tampering detection settings

Group: **tampering_c<0~(n-1)>** for n channel product (capability.tampering > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	4/4	Enable or disable tamper detection.
threshold	0 ~ 255	4/4	Threshold of tamper detection.
duration	10 ~ 600	4/4	If tampering value exceeds the 'threshold' for more than 'duration' second(s), then tamper detection is triggered.

7.17 DDNS

Group: **ddns** (capability.ddns > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable or disable the dynamic DNS.
provider	Safe100, DyndnsDynamic, DyndnsCustom, TZO, DHS, DynInterfree, CustomSafe100	6/6	Safe100 => safe100.net DyndnsDynamic => dyndns.org (dynamic) DyndnsCustom => dyndns.org (custom) TZO => tzo.com DHS => dhs.org DynInterfree =>dyn-interfree.it CustomSafe100 => Custom server using safe100 method
<provider>_hostname	string[128]	6/6	Your DDNS hostname.
<provider>_usernameemail	string[64]	6/6	Your user name or email to login to the DDNS service provider
<provider>_passwordkey	string[64]	6/6	Your password or key to login to the DDNS service provider.
<provider>_servername	string[128]	6/6	The server name for safe100. (This field only exists if the provider is customsafe100)

7.18 UPnP presentation

Group: **upnppresentation**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable or disable the UPnP presentation service.

7.19 UPnP port forwarding

Group: **upnpportforwarding**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	Enable or disable the UPnP port forwarding service.
upnpnatstatus	0~3	6/7	The status of UPnP port forwarding, used internally. 0 = OK, 1 = FAIL, 2 = no IGD router, 3 = no need

			for port forwarding

7.20 System log

Group: **syslog**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enableremotelog	<boolean>	6/6	Enable remote log.
serverip	<IP address>	6/6	Log server IP address.
serverport	514, 1025~65535	6/6	Server port used for log.
level	0~7	6/6	Levels used to distinguish the importance of the information: 0: LOG_EMERG 1: LOG_ALERT 2: LOG_CRIT 3: LOG_ERR 4: LOG_WARNING 5: LOG_NOTICE 6: LOG_INFO 7: LOG_DEBUG

7.21 SNMP

Group: **snmp** (capability.protocol.snmp > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
v2	0~1	6/6	SNMP v2 enabled. 0 for disable, 1 for enable
v3	0~1	6/6	SNMP v3 enabled. 0 for disable, 1 for enable
secnamerw	string[31]	6/6	Read/write security name
secnamero	string[31]	6/6	Read only security name
authpwrw	string[8~128]	6/6	Read/write authentication password
authpwro	string[8~128]	6/6	Read only authentication password
authtyperw	MD5,SHA	6/6	Read/write authentication type
authtypero	MD5,SHA	6/6	Read only authentication type
encryptpwrw	string[8~128]	6/6	Read/write password
encryptpwro	string[8~128]	6/6	Read only password
encrypttyperw	DES	6/6	Read/write encryption type
encrypttypero	DES	6/6	Read only encryption type
rwcommunity	string[31]	6/6	Read/write community
rocommunity	string[31]	6/6	Ready only community

7.22 Layout configuration

Group: **layout**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
logo_default	<boolean>	1/6	0 => Custom logo 1 => Default logo
logo_link	string[40]	1/6	Hyperlink of the logo
logo_powerbyvvtk_hidden	<boolean>	1/6	0 => display the power by vivotek logo 1 => hide the power by vivotek logo
custombutton_manualtrigger_show	<boolean>	1/6	Show or hide manual trigger (VI) button in homepage 0 -> Hidden 1 -> Visible
theme_option	1~4	1/6	1~3: One of the default themes. 4: Custom definition.
theme_color_font	string[7]	1/6	Font color
theme_color_configfont	string[7]	1/6	Font color of configuration area.
theme_color_titlefont	string[7]	1/6	Font color of video title.
theme_color_controlbackground	string[7]	1/6	Background color of control area.
theme_color_configbackground	string[7]	1/6	Background color of configuration area.
theme_color_videobackground	string[7]	1/6	Background color of video area.
theme_color_case	string[7]	1/6	Frame color

7.23 Privacy mask

Group: **privacymask_c<0~(n-1)>** for n channel product

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	4/4	Enable privacy mask.
win_i<0~4>_enable	<boolean>	4/4	Enable privacy mask window.
win_i<0~4>_name	string[14]	4/4	Name of the privacy mask window.
win_i<0~4>_left	0 ~ 320/352	4/4	Left coordinate of window position.
win_i<0~4>_top	0 ~ 240/288	4/4	Top coordinate of window position.
win_i<0~4>_width	0 ~ 320/352	4/4	Width of privacy mask window.
win_i<0~4>_height	0 ~ 240/288	4/4	Height of privacy mask window.

7.24 Capability

Group: **capability**

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
api_httpversion	0100a	0/7	The HTTP API version.
bootuptime	<positive integer>	0/7	Server bootup time.
nir	0, <positive integer>	0/7	Number of IR interfaces. (Recommand to use ir for built-in IR and extir for external IR)
npir	0, <positive integer>	0/7	Number of PIRs.
ndi	0, <positive integer>	0/7	Number of digital inputs.
nvi	0, <positive integer>	0/7	Number of virtual inputs (manual trigger)
ndo	0, <positive integer>	0/7	Number of digital outputs.
naudioin	0, <positive integer>	0/7	Number of audio inputs.
naudioout	0, <positive integer>	0/7	Number of audio outputs.
nvideoin	<positive integer>	0/7	Number of video inputs.
nmediastream	<positive integer>	0/7	Number of media stream per channels.
nvideosetting	<positive integer>	0/7	Number of video settings per channel.
naudiosetting	<positive integer>	0/7	Number of audio settings per channel.
nuart	0, <positive integer>	0/7	Number of UART interfaces.
nvideoinprofile	<positive integer>	0/7	Number of video input profiles.
nmotionprofile	0, <positive integer>	0/7	Number of motion profiles.
ptzenabled	0, <positive integer>	0/7	An 32-bit integer, each bit can be set separately as follows: Bit 0 => Support camera control function; 0(not support), 1(support) Bit 1 => Built-in or external camera; 0(external), 1(built-in) Bit 2 => Support pan operation, 0(not

			support), 1(support) Bit 3 => Support tilt operation; 0(not support), 1(support) Bit 4 => Support zoom operation; 0(not support), 1(support) Bit 5 => Support focus operation; 0(not support), 1(support) Bit 6 => Support iris operation; 0(not support), 1(support) Bit 7 => External or built-in PT; 0(built-in), 1(external) Bit 8 => Invalidate bit 1 ~ 7; 0(bit 1 ~ 7 are valid), 1(bit 1 ~ 7 are invalid) Bit 9 => Reserved bit; Invalidate lens_pan, Lens_tilt, lens_zoon, lens_focus, len_iris. 0(fields are valid), 1(fields are invalid)
eptz	0, <positive integer>	0/7	A 32-bit integer, each bit can be set separately as follows: Bit 0 => stream 1 supports ePTZ or not. Bit 1 => stream 2 supports ePTZ or not. The rest may be deduced by analogy
npreset	0, <positive integer>	0/7	Number of preset locations.
protocol_https	< boolean >	0/7	Indicate whether to support HTTP over SSL.
protocol_rtsp	< boolean >	0/7	Indicate whether to support RTSP.
protocol_sip	<boolean>	0/7	Indicate whether to support SIP.
protocol_maxconnection	<positive integer>	0/7	The maximum allowed simultaneous connections.
protocol_maxgenconnection	<positive integer>	0/7	The maximum general streaming connections.
protocol_maxmegaconnection	<positive integer>	0/7	The maximum megapixel streaming connections.
protocol_rtp_multicast_scalable	<boolean>	0/7	Indicate whether to support scalable multicast.
protocol_rtp_multicast_backchannel	<boolean>	0/7	Indicate whether to support backchannel multicast.
protocol_rtp_tcp	<boolean>	0/7	Indicate whether to support RTP over TCP.

protocol_rtp_http	<boolean>	0/7	Indicate whether to support RTP over HTTP.
protocol_spush_mjpeg	<boolean>	0/7	Indicate whether to support server push MJPEG.
protocol_snmp	<boolean>	0/7	Indicate whether to support SNMP.
protocol_ipv6	<boolean>	0/7	Indicate whether to support IPv6.
videoin_type	0, 1, 2	0/7	0 => Interlaced CCD 1 => Progressive CCD 2 => CMOS
videoin_resolution	<a list of available resolution separated by commas>	0/7	Available resolutions list.
videoin_maxframerate	<a list of available maximum frame rate separated by commas>	0/7	Available maximum frame list.
videoin_codec	mpeg4. mjpeg, h264	0/7	Available codec list.
videoin_streamcodec	<integer>	0/7	Each stream has its own support codec type. It is bitwise depends on videoin_codec. bit0: mpeg4 bit1: mjpeg bit2: h264 First stream support mjpeg and h264 (bit0:0, bit1:1, bit2:1)
videoout_codec	<a list of the available codec types separated by commas)	0/7	Available codec list.
audio_aec	<boolean>	0/7	Indicate whether to support acoustic echo cancellation.
audio_mic	<boolean>	0/7	Indicate whether to support built-in microphone input.
audio_extmic	<boolean>	0/7	Indicate whether to support external microphone input.
audio_linein	<boolean>	0/7	Indicate whether to support external line input. (It will be replaced by audio_mic and audio_extmic.)

audio_lineout	<boolean>	0/7	Indicate whether to support line output.
audio_headphoneout	<boolean>	0/7	Indicate whether to support headphone output.
audioin_codec	gamr, g711	0/7	Available codec list for audio input.
uart_httptunnel	<boolean>	0/7	Indicate whether to support HTTP tunnel for UART transfer.
camctrl_privilege	<boolean>	0/7	Indicate whether to support "Manage Privilege" of PTZ control in the Security page. 1: support both /cgi-bin/camctrl/camctrl.cgi and /cgi-bin/viewer/camctrl.cgi 0: support only /cgi-bin/viewer/camctrl.cgi
transmission_mode	Tx, Rx, Both	0/7	Indicate transmission mode of the machine: TX = server, Rx = receiver box, Both = DVR.
network_wire	<boolean>	0/7	Indicate whether to support Ethernet.
network_wireless	<boolean>	0/7	Indicate whether to support wireless.
wireless_s802dot11b	<boolean>	0/7	Indicate whether to support wireless 802.11b+.
wireless_s802dot11g	<boolean>	0/7	Indicate whether to support wireless 802.11g.
wireless_beginchannel	1 ~ 14	0/7	Indicate the begin channel of wireless network
wireless_endchannel	1 ~ 14	0/7	Indicate the end channel of wireless network
wireless_encrypt_wep	<boolean>	0/7	Indicate whether to support wireless WEP.
wireless_encrypt_wpa	<boolean>	0/7	Indicate whether to support wireless WPA.
wireless_encrypt_wpa2	<boolean>	0/7	Indicate whether to support wireless WPA2.
derivative_brand	<boolean>	0/7	Indicate whether to support the upgrade function for the derivative brand. For example, if the value is true, the VVTK product can be upgraded to VVXX. (TCVV<->TCXX is excepted)
evctrlchannel	<boolean>	0/7	Indicate whether to support HTTP tunnel for event/control transfer.
joystick	<boolean>	0/7	Indicate whether to support joystick control.
storage_dbenabled	<boolean>	0/7	Media files are indexed in database.
nanystream	0, <positive	0/7	number of any media stream per channel

	integer>		
iva	<boolean>	0/7	Indicate whether to support Intelligent Video analysis
version_onvifdaemon	<string>	0/7	Indicate ONVIF daemon version

7.25 Customized event script

Group: **event_customtaskfile_i**<0~2>

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[41]	6/7	Custom script identification of this entry.
date	string[17]	6/7	Date of custom script.
time	string[17]	6/7	Time of custom script.

7.26 Event setting

Group: **event_i**<0~2>

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	Identification of this entry.
enable	0, 1	6/6	Enable or disable this event.
priority	0, 1, 2	6/6	Indicate the priority of this event: "0" = low priority "1" = normal priority "2" = high priority
delay	1~999	6/6	Delay in seconds before detecting the next event.
trigger	boot, di, pir, motion, seq, recnotify, tampering, vi	6/6	Indicate the trigger condition: "boot" = System boot "di" = Digital input "pir" = PIR "motion" = Video motion detection "seq" = Periodic condition "recnotify" = Recording notification. "tampering" = Tamper detection. "vi"= Virtual input (Manual trigger)
triggerstatus	String[40]	6/6	The status for event trigger
di	<integer>	6/6	Indicate the source id of di trigger. This field is required when trigger condition is "di". One bit represents one digital input. The LSB indicates DI 0.

vi	<integer>	6/6	Indicate the source id of vi trigger. This field is required when trigger condition is “vi”. One bit represents one digital input. The LSB indicates VI 0.
mdwin	<integer>	6/6	Indicate the source window id of motion detection. This field is required when trigger condition is “md”. One bit represents one window. The LSB indicates the 1st window. For example, to detect the 1st and 3rd windows, set mdwin as 5.
mdwin0	<integer>	6/6	Similar to mdwin. The parameter takes effect when profile 1 of motion detection is enabled.
inter	1~999	6/6	Interval of snapshots in minutes. This field is used when trigger condition is “seq”.
weekday	0~127	6/6	Indicate which weekday is scheduled. One bit represents one weekday. bit0 (LSB) = Saturday bit1 = Friday bit2 = Thursday bit3 = Wednesday bit4 = Tuesday bit5 = Monday bit6 = Sunday For example, to detect events on Friday and Sunday, set weekday as 66.
begintime	hh:mm	6/6	Begin time of the weekly schedule.
endtime	hh:mm	6/6	End time of the weekly schedule. (00:00 ~ 24:00 sets schedule as always on)
action_do_i<0~(ndo-1)>_enable	0, 1	6/6	Enable or disable trigger digital output.
action_do_i<0~(ndo-1)>_duration	1~999	6/6	Duration of the digital output trigger in seconds.
action_wled_i<0~(nwled-1)>_enable	0, 1	6/6	Enable or disable trigger white light LED.
action_wled_i<0~(nwled-1)>_duration	1~999	6/6	Duration of the white light LED trigger in seconds.
action_server_i<0~4>_enable	0, 1	6/6	Enable or disable this server action.
action_server_i<0~4>_media	NULL, 0~4,101	6/6	Index of the attached media. 101: recording notify

action_server_i<0~4>_datefolder	<boolean>	6/6	Enable this to create folders by date, time, and hour automatically.

7.27 Server setting for event action

Group: **server_i**<0~4>

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	Identification of this entry
type	email, ftp, http, ns	6/6	Indicate the server type: “email” = email server “ftp” = FTP server “http” = HTTP server “ns” = network storage
http_url	string[128]	6/6	URL of the HTTP server to upload.
http_username	string[64]	6/6	Username to log in to the server.
http_passwd	string[64]	6/6	Password of the user.
ftp_address	string[128]	6/6	FTP server address.
ftp_username	string[64]	6/6	Username to log in to the server.
ftp_passwd	string[64]	6/6	Password of the user.
ftp_port	0~65535	6/6	Port to connect to the server.
ftp_location	string[128]	6/6	Location to upload or store the media.
ftp_passive	0, 1	6/6	Enable or disable passive mode. 0 = disable passive mode 1 = enable passive mode
email_address	string[128]	6/6	Email server address.
email_sslmode	0, 1	6/6	Enable support SSL.
email_port	0~65535	6/6	Port to connect to the server.
email_username	string[64]	6/6	Username to log in to the server.
email_passwd	string[64]	6/6	Password of the user.
email_senderemail	string[128]	6/6	Email address of the sender.
email_recipientemail	string[128]	6/6	Email address of the recipient.
ns_location	string[128]	6/6	Location to upload or store the media.
ns_username	string[64]	6/6	Username to log in to the server.
ns_passwd	string[64]	6/6	Password of the user.
ns_workgroup	string[64]	6/6	Workgroup for network storage.

7.28 Media setting for event action

Group: **media_i<0~4>** (media_freespace is used internally.)

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	Identification of this entry
type	snapshot, systemlog, videoclip, recordmsg	6/6	Media type to send to the server or store on the server.
snapshot_source	<integer>	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream and etc. 2 means the third stream and etc. 3 means the fourth stream and etc.
snapshot_prefix	string[16]	6/6	Indicate the prefix of the filename.
snapshot_datesuffix	0, 1	6/6	Add date and time suffix to filename: 1 = Add date and time suffix. 0 = Do not add.
snapshot_preevent	0 ~ 7	6/6	Indicates the number of pre-event images.
snapshot_postevent	0 ~ 7	6/6	The number of post-event images.
videoclip_source	<integer>	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream and etc. 2 means the third stream and etc. 3 means the fourth stream and etc.
videoclip_prefix	string[16]	6/6	Indicate the prefix of the filename.
videoclip_preevent	0 ~ 9	6/6	Indicates the time for pre-event recording in seconds.
videoclip_maxduration	1 ~ 20	6/6	Maximum duration of one video clip in seconds.
videoclip_maxsize	50 ~ 5000	6/6	Maximum size of one video clip file in Kbytes.

Group: **media_i101** (can't be modified by user)

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/7	Identification of this entry
type	recordmsg	6/7	Media type to send to the server or store on the server.

7.29 Recording

Group: **recording_i**<0~1>

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	6/6	Identification of this entry.
trigger	schedule, networkfail	6/6	The event trigger type schedule: The event is triggered by schedule networkfail: The event is triggered by the failure of network connection.
enable	0, 1	6/6	Enable or disable this recording.
priority	0, 1, 2	6/6	Indicate the priority of this recording: "0" indicates low priority. "1" indicates normal priority. "2" indicates high priority.
source	0~2	6/6	Indicate the source of media stream. 0 means the first stream. 1 means the second stream and so on.
limitsize	0,1	6/6	0: Entire free space mechanism 1: Limit recording size mechanism
cyclic	0,1	6/6	0: Disable cyclic recording 1: Enable cyclic recording
notify	0,1	6/6	0: Disable recording notification 1: Enable recording notification
notifyserver	0~31	6/6	Indicate which notification server is scheduled. One bit represents one application server (server_i0~i4). bit0 (LSB) = server_i0. bit1 = server_i1. bit2 = server_i2. bit3 = server_i3. bit4 = server_i4. For example, enable server_i0, server_i2, and server_i4 as notification servers; the notifyserver value is 21.

weekday	0~127	6/6	Indicate which weekday is scheduled. One bit represents one weekday. bit0 (LSB) = Saturday bit1 = Friday bit2 = Thursday bit3 = Wednesday bit4 = Tuesday bit5 = Monday bit6 = Sunday For example, to detect events on Friday and Sunday, set weekday as 66.
begintime	hh:mm	6/6	Start time of the weekly schedule.
endtime	hh:mm	6/6	End time of the weekly schedule. (00:00~24:00 indicates schedule always on)
prefix	string[16]	6/6	Indicate the prefix of the filename.
cyclesize	16~	6/6	The maximum size for cycle recording in Kbytes when choosing to limit recording size.
reserveamount	0~15000000	6/6	The reserved amount in Mbytes when choosing cyclic recording mechanism.
dest	0	6/6	The destination to store the recorded data. “0” means the index of the network storage.
adaptive_enable	0,1	6/6	Indicate whether the adaptive recording is enabled
adaptive_preevent	0~9	6/6	Indicate when is the adaptive recording started before the event trigger point (seconds)
adaptive_postevent	0~10	6/6	Indicate when is the adaptive recording stopped after the event trigger point (seconds)

7.30 HTTPS

Group: **https** (capability.protocol.https > 0)

NAME	VALUE	SECURITY (get/set)	DESCRIPTION
enable	<boolean>	6/6	To enable or disable secure HTTP.
policy	<boolean>	6/6	If the value is 1, it will force HTTP connection redirect to HTTPS connection
method	auto, manual, install	6/6	auto => Create self-signed certificate automatically. manual => Create self-signed certificate manually. install => Create certificate request and install.
status	-3 ~ 1	6/6	Specify the https status. -3 = Certificate not installed -2 = Invalid public key -1 = Waiting for certificate 0 = Not installed 1 = Active
countryname	string[2]	6/6	Country name in the certificate information.
stateorprovincename	string[128]	6/6	State or province name in the certificate information.
localityname	string[128]	6/6	The locality name in the certificate information.
organizationname	string[64]	6/6	Organization name in the certificate information.
unit	string[32]	6/6	Organizational unit name in the certificate information.
commonname	string[64]	6/6	Common name in the certificate information.
validdays	0 ~ 9999	6/6	Valid period for the certification.

7.31 Region of interest

Group: **roi_c<0~(n-1)>** for n channel product, and n is the number of streams which support ROI.
In this model only stream0 support ROI

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
s<0~(m-1)>_home	0,0~1104~656	1/6	ROI left-top corner coordinate.
s<0~(m-1)>_size	176x144~	1/6	ROI width and height. The width value must be multiples of 16 and the height value must be multiples of 8

7.32 Express link

Group: **expresslink**

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
state	onlycheck, onlyoffline, checkonline, badnetwork	6/6	Camera will check the status of network environment and express link URL
url	string[64]	6/6	The url user define to link to camera

7.33 White light LED

Group: **wled_i<0~(ndi-1)>** (capability.nwled > 0)

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
on_mode	0,1	1/6	The style to turn on white light LED. 0: Directly. 1: Fade in.
off_mode	0,1	1/6	The style to turn off white light LED. 0: Directly. 1: Fade out.
direct_brightness	1~100	1/6	Brightness percentage of white light LED to reach as on_mode is 0.
fade_brightness	1~100	1/6	Brightness percentage of white light LED to reach as on_mode is 1.

7.34 Audio clip

Group: **audioclip_i<0~19>**

PARAMETER	VALUE	SECURITY (get/set)	DESCRIPTION
name	string[40]	1/6	Identification of this audio clip.
location	<string>	1/6	Saved location of this audio clip.
size	<integer>	1/6	Size of this audio clip.

8. Useful Functions

8.1 Drive the Digital Output (capability.ndo > 0)

Note: This request requires Viewer privileges.
Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/dido/setdo.cgi?do1=<*state*>[&do2=<state>] [&do3=<state>][&do4=<state>]

Where state is 0 or 1; "0" means inactive or normal state, while "1" means active or triggered state.

PARAMETER	VALUE	DESCRIPTION
do<num>	0, 1	0 – Inactive, normal state
		1 – Active, triggered state

Example: Drive the digital output 1 to triggered state and redirect to an empty page.

http://myserver/cgi-bin/dido/setdo.cgi?do1=1

8.2 Query Status of the Digital Input (capability.ndi > 0)

Note: This request requires Viewer privileges
Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/dido/getdi.cgi?[di0][&di1][&di2][&di3]

If no parameter is specified, all of the digital input statuses will be returned.

Return:

HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <*length*>\r\n
\r\n
[di0=<state>]\r\n
[di1=<state>]\r\n
[di2=<state>]\r\n
[di3=<state>]\r\n

where <*state*> can be 0 or 1.

Example: Query the status of digital input 1.

Request:
http://myserver/cgi-bin/dido/getdi.cgi?di1

Response:
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: 7\r\n
\r\n
di1=1\r\n

8.3 Query Status of the Digital Output (capability.ndo > 0)

Note: This request requires Viewer privileges

Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/dido/getdo.cgi?[do0][&do1][&do2][&do3]

If no parameter is specified, all the digital output statuses will be returned.

Return:

HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <*length*>\r\n
\r\n
[do0=<state>]\r\n
[do1=<state>]\r\n
[do2=<state>]\r\n
[do3=<state>]\r\n

where <*state*> can be 0 or 1.

Example: Query the status of digital output 1.

Request:
http://myserver/cgi-bin/dido/getdo.cgi?do1

Response:
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: 7\r\n

```
\r\n
do1=1\r\n
```

8.4 Capture Single Snapshot

Note: This request requires Normal User privileges.
Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/viewer/video.jpg?[channel=<value>][&resolution=<value>]
[&quality=<value>][&streamid=<value>]

If the user requests a size larger than all stream settings on the server, this request will fail.

PARAMETER	VALUE	DEFAULT	DESCRIPTION
channel	0~(n-1)	0	The channel number of the video source.
resolution	<available resolution>	0	The resolution of the image.
quality	1~5	3	The quality of the image.
streamid	0~(m-1)	1	The stream number.

The server will return the most up-to-date snapshot of the selected channel and stream in JPEG format. The size and quality of the image will be set according to the video settings on the server.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: image/jpeg\r\n
[Content-Length: <image size>\r\n]

<binary JPEG image data>
```

8.5 Account Management

Note: This request requires Administrator privileges.
Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/admin/editaccount.cgi?
method=<value>&username=<*name*>[&userpass=<*value*>][&privilege=<*value*>]
[&privilege=<value>][…][&return=<*return page*>]

PARAMETER	VALUE	DESCRIPTION
method	add	Add an account to the server. When using this method, the "username" field is necessary. It will use the default value of other fields if not specified.
	delete	Remove an account from the server. When using this method, the "username" field is necessary, and others are ignored.
	edit	Modify the account password and privilege. When using this method, the "username" field is necessary, and other fields are optional. If not specified, it will keep the original settings.
username	<name>	The name for the user to add, delete, or edit.
userpass	<value>	The password of the new user to add or that of the old user to modify. The default value is an empty string.
privilege	<value>	The privilege of the user to add or to modify.
	viewer	Viewer privilege.
	operator	Operator privilege.
	admin	Administrator privilege.
return	<return page>	Redirect to the page <*return page*> after the parameter is assigned. The <*return page*> can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page.

8.6 System Logs

Note: This request require Administrator privileges.
Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/admin/syslog.cgi

Server will return the most up-to-date system log.

Return:

```
HTTP/1.0 200 OK\r\n
Content-Type: text/plain\r\n
Content-Length: <syslog length>\r\n
\r\n
<system log information>\r\n
```

8.7 Upgrade Firmware

Note: This request requires Administrator privileges.
Method: POST

Syntax:

http://<*servername*>/cgi-bin/admin/upgrade.cgi

Post data:

fimage=<file name>[&return=<return page>]\r\n \r\n <multipart encoded form data>

Server will accept the file named <file name> to upgrade the firmware and return with <return page> if indicated.

8.8 IP Filtering

Note: This request requires Administrator access privileges.
Method: GET/POST

Syntax:

http://<*servername*>/cgi-bin/admin/ipfilter.cgi?type[=<value>] http://<*servername*>/cgi-bin/admin/ipfilter.cgi?method=add<v4/v6>&ip=<*ipaddress*>[&index=<value>][&return=<*return page*>] http://<*servername*>/cgi-bin/admin/ipfilter.cgi?method=del<v4/v6>&index=<value>[&return=<*return page*>]

PARAMETER	VALUE	DESCRIPTION
type	NULL	Get IP filter type
	allow, deny	Set IP filter type
method	addv4	Add IPv4 address into access list.
	addv6	Add IPv6 address into access list.
	delv4	Delete IPv4 address from access list.
	delv6	Delete IPv6 address from access list.
ip	<IP address>	Single address: <IP address> Network address: <IP address / network mask> Range address:<start IP address - end IP address>
index	<value>	The start position to add or to delete.
return	<return page>	Redirect to the page <*return page*> after the parameter is assigned.

		The <*return page*> can be a full URL path or relative path according to the current path. If you omit this parameter, it will redirect to an empty page.

8.9 Event/Control HTTP Tunnel Channel (capability.evctrlchannel > 0)

Note: This request requires Administrator privileges.
Method: GET and POST

Syntax:

```
http://<servername>/cgi-bin/admin/ctrlevent.cgi
---------------------------------------------------------------------
GET /cgi-bin/admin/ctrlevent.cgi
x-sessioncookie: string[22]
accept: application/x-vvtk-tunnelled
pragma: no-cache
cache-control: no-cache


---------------------------------------------------------------------
POST /cgi-bin/admin/ ctrlevent.cgi
x-sessioncookie: string[22]
content-type: application/x-vvtk-tunnelled
pragma : no-cache
cache-control : no-cache
content-length: 32767
expires: Sun, 9 Jam 1972 00:00:00 GMT
```

User must use GET and POST to establish two channels for downstream and upstream. The x-sessioncookie in GET and POST should be the same to be recognized as a pair for one session. The contents of upstream should be base64 encoded to be able to pass through the proxy server.

This channel will help perform real-time event subscription and notification as well as camera control more efficiently. The event and control formats are described in another document.

See Event/control tunnel spec for detail information

8.10 Get SDP of Streams

Note: This request requires Viewer access privileges.
Method: GET/POST

Syntax:

http://<*servername*>/<network_rtsp_s<0~m-1>_accessname>

"m" is the stream number.
"network_accessname_<0~(m-1)>" is the accessname for stream "1" to stream "m". Please refer to the "subgroup of network: rtsp" for setting the accessname of SDP.
You can get the SDP by HTTP GET.
When using scalable multicast, Get SDP file which contains the multicast information via HTTP.

8.11 Open the Network Stream

Note: This request requires Viewer access privileges.

Syntax:
For HTTP push server (MJPEG):

http://<*servername*>/<network_http_s<0~m-1>_accessname>

For RTSP (MP4), the user needs to input the URL below into an RTSP compatible player.

rtsp://<*servername*>/<network_rtsp_s<0~m-1>_accessname>

"m" is the stream number.
For details on streaming protocol, please refer to the "control signaling" and "data format" documents.

8.12 Virtual input (capability.nvi > 0)

Note: Change virtual input (manual trigger) status.
Method: GET

Syntax:

http://<servername>/cgi-bin/admin/setvi.cgi?vi0=<value>[&vi1=<value>][&vi2=<value>][&return=<return page>]

PARAMETER	VALUE	DESCRIPTION
vi<num>	state[(duration)nstate] Where "state" is 0, 1. "0" means inactive or normal state while "1" means active or triggered state. Where "nstate" is next state after duration.	Ex: vi0=1 Setting virtual input 0 to trigger state
		Ex: vi0=0(200)1 Setting virtual input 0 to normal state, waiting 200 **milliseconds**, setting it to trigger state. Note that when the virtual input is waiting for next state, it cannot accept new requests.
return	*<return page>*	Redirect to the page *<return page>* after the request is completely assigned. The *<return page>* can be a full URL path or relative path according the current path. If you omit this parameter, it will redirect to an empty page.

Return Code	Description
200	The request is successfully executed.
400	The request cannot be assigned, ex. incorrect parameters. Examples: 1. setvi.cgi?vi0=0(10000)1(15000)0(20000)1 No multiple duration. 2. setvi.cgi?vi3=0 VI index is out of range. 3. setvi.cgi?vi=1 No VI index is specified.
503	The resource is unavailable, ex. Virtual input is waiting for next state.

	Examples: 1. setvi.cgi?vi0=0(15000)1 2. setvi.cgi?vi0=1 Request 2 will not be accepted during the execution time(15 seconds).

Technical Specifications

Models	· IP8132 (Wired) · IP8133 (PoE) · IP8133W (WLAN)
System	· CPU: Mozart 365 SoC · Flash: 16MB · RAM: 128MB · Embedded OS: Linux 2.6
Lens	· Board lens, Fixed, f = 3.45 mm, F2.4
Angle of View	· 47.4°(horizontal) · 30.6°(vertical) · 54.7°(diagonal)
Shutter Time	· 1/5 sec. to 1/25,000 sec.
Image Sensor	· 1/4"CMOS sensor in 1280x800 resolution
Minimum Illumination	· 3.0 Lux / F2.4
Video	· Compression: H.264, MJPEG & MPEG-4 · Streaming: Multiple simultaneous streams H.264 streaming over UDP, TCP, HTTP or HTTPS MPEG-4 streaming over UDP, TCP, HTTP or HTTPS MPEG-4 multicast streaming MJPEG streaming over HTTP or HTTPS · Supports activity adaptive streaming for dynamic frame rate control · Supports 3GPP mobile surveillance · Frame rates: H.264: Up to 30 fps at 1280x800 MPEG-4: Up to 23 fps at 1280x800 MJPEG: Up to 30 fps at 1280x800
Image Settings	· Adjustable image size, quality and bit rate · Time stamp and text caption overlay · Flip & mirror · Configurable brightness, contrast, saturation, sharpness, white balance and exposure · AGC, AWB, AES · BLC (Backlight Compensation) · Supports privacy masks
Audio	· Compression: GSM-AMR speech encoding, bit rate: 4.75 kbps to 12.2 kbps G.711 audio encoding, bit rate: 64 kbps, μ-Law or A-Law mode selectable · Interface: Built-in microphone (IP8132/33/33W) Built-in speaker (IP8133/33W) · Supports two-way audio via SIP protocol (IP8133/33W) · Supports audio mute
Networking	· 10/100 Mbps Ethernet, RJ-45 · Built-in 802.11b/g/n WLAN (IP8133W) · Onvif support · Protocols: IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, FTP,DHCP, NTP, DNS, DDNS, PPPoE, CoS, QoS, and SNMP
Alarm and Event Management	· Triple-window video motion detection · Tamper detection · One D/I and one D/O for external sensor and alarm · PIR (Passive Infrared Sensor) for human detection (IP8133/33W) · White-light illuminators when event triggered (IP8133/33W) · Event notification using HTTP, SMTP or FTP · Local recording of MP4 file
On-board Storage (IP8133/33W)	· MicroSD/SDHC card slot · Stores snapshots and video clips
Security	· Muilti-level user access with password protection · IP address filtering · Wireless: WEP, WPA-PSK, WPA2 (IP8133W) · WPS - Wi-Fi Protected Setup (IP8133W) · HTTPS encrypted data transmission
Users	· Live viewing for up to 10 clients
Dimension	· 32 mm (D) x 79 mm (W) x 80 mm (H)
Weight	· Net: 180 g (IP8132) · Net: 200 g (IP8133) · Net: 195 g (IP8133W)
LED Indicator	· System power and status indicator · System activity and network link indicator · Privacy button on
Power	· 5V DC · Power consumption: Max. 3.4 W (IP8132) · Power consumption: Max. 4.3 W (IP8133) · Power consumption: Max. 4.7 W (IP8133W) · 802.3af compliant Power-over-Ethernet (Class 3) (IP8133)
Approvals	· CE, LVD, FCC, VCCI, C-Tick
Operating Environments	· Temperature: 0 ~ 40C (32 ~ 104°F) · Humidity: 90% RH
Viewing System Requirements	· OS: Microsoft Windows 7/Vista/XP/2000 · Browser: Mozilla Firefox, Internet Explorer 6.x or above · Cell phone: 3GPP player · Real Player: 10.5 or above · Quick Time: 6.5 or above
Installation, Management, and Maintenance	· Installation Wizard 2 · 32-CH ST7501 recording software · Supports firmware upgrade
Applications	· SDK available for application development and system integration
Warranty	· 24 months

Technology License Notice

MPEG-4 Visual Technology

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TELEFONAKIEBOLAGET ERICSSON AB: US PAT. 6192335; 6275798; 6029125; 6424938; 6058359. NOKIA CORPORATION: US PAT. 5946651; 6199035. VOICEAGE CORPORATION: AT PAT. 0516621; BE PAT. 0516621; CA PAT. 2010830; CH PAT. 0516621; DE PAT. 0516621; DK PAT. 0516621; ES PAT. 0516621; FR PAT. 0516621; GB PAT. 0516621; GR PAT. 0516621; IT PAT. 0516621; LI PAT. 0516621; LU PAT. 0516621; NL PAT. 0516621; SE PAT 0516621; US PAT 5444816; AT PAT. 819303/AT E 198805T1; AU PAT. 697256; BE PAT. 819303; BR PAT. 9604838-7; CA PAT. 2216315; CH PAT. 819303; CN PAT. ZL96193827.7; DE PAT. 819303/DE69611607T2; DK PAT. 819303; ES PAT. 819303; EP PAT. 819303; FR PAT. 819303; GB PAT. 819303; IT PAT. 819303; JP PAT. APP. 8-529817; NL PAT. 819303; SE PAT. 819303; US PAT. 5664053. THE LIST MAY BE UPDATED FROM TIME TO TIME BY LICENSORS AND A CURRENT VERSION OF WHICH IS AVAILABLE ON LICENSOR'S WEBSITE AT HTTP://WWW.VOICEAGE.COM.

Electromagnetic Compatibility (EMC)

FCC Statement

This device compiles with FCC Rules Part 15. Operation is subject to the following two conditions.

■ This device may not cause harmful interference, and

■ This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a partial installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

■ Reorient or relocate the receiving antenna.

■ Increase the separation between the equipment and receiver.

■ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

■ Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

VCCI Warning

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準にづくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい

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